



City Of Redmond

Water Shortage Response Plan

NOVEMBER 2016

Approved:

A handwritten signature in blue ink, reading "John Marchione", is written over a horizontal line. The signature is fluid and cursive.

John Marchione, Mayor

## **Introduction**

This Water Shortage Response Plan provides guidance for the City of Redmond to respond to events that affect the supply of water available to our customers and to manage water demands during these events. This plan is to be implemented for longer term water shortage events and is not for short term events such as a water main break or other physical disruption to the water system. The Emergency Response Plan should be consulted for these short term events.

Several events have occurred during the last three decades that have resulted in the region implementing curtailment activities in accordance with adopted water shortage response plans. The first was during the summer and fall of 1987, the second during winter and spring 1992, and the third during the spring through fall of 2001. The fourth was during the winter of 2002, and the most recent was during the spring and summer of 2005. Each of these weather related shortages have helped guide the development of the current regional water shortage response plans.

## **Redmond's Water Supply**

Redmond's has two sources of water. One is groundwater that supplies a portion of the demand for the Well Service Area which is the area of Redmond lying east of the Sammamish River. The second is regional surface water that is purchased through Cascade Water Alliance (CWA). CWA purchases its supply from Seattle Public Utilities. This supply is primarily from the Tolt River. Occasionally water from the Cedar River is also provided to Redmond. This purchased surface water supply is the only supply to Redmond's Rose Hill Service Area, Overlake/Viewpoint Service Area, and Novelty Hill Service Area. Redmond's ground water supplies between one quarter and one third of Redmond's annual demand so any decrease in the regional surface water supply significantly impacts Redmond's water supply.

## **Regional Shortage Response Plans**

Cascade Water Alliance's (CWA) supply is purchased from Seattle Public Utilities (SPU). CWA will coordinate its water shortage response activities with Seattle and Tacoma. The CWA membership agreement provides that members must respond to water shortages in a collective, shared fashion under a CWA shortage management plan and that resources must be shared in a manner that reduces the risk of severe shortages to each member. CWA has published its Water Shortage Management Plan, which was adopted by the Board of Directors on October 26, 2016. CWA's Water Shortage Management Plan is included as Appendix A.

SPU published its most recent Water Shortage Contingency Plan in July 2006. The plan explains different types of droughts that can affect the region, and identifies instream flow issues for the Tolt and Cedar Rivers. A Drought Management Strategy includes;

monitoring of water and snow in the watersheds, monitoring daily and seasonal weather forecasts, reductions of use of water through operational adjustments and phased curtailment actions, and communication activities to help inform customers and other stakeholders about the status of the water supply and what actions are being taken. The phased curtailment plan is the primary tool that is used to have customers reduce their consumption of water. The plan has four stages; Advisory, Voluntary, Mandatory, and Emergency Curtailment. The objectives, triggers, and planned communication actions for each stage are described. SPU's plan is included as Appendix B.

An effective response to water shortages must be regionally consistent throughout the service area of the regional water supplies. Public support and cooperation is likely to be greater if requested curtailments are equitable across the region. It is easier to communicate curtailment actions through the media if all agencies are coordinated with their responses and messaging.

### **Water Shortage Response Plan Activation**

Within the City of Redmond and the Redmond Water Service Area not within the City the Mayor is designated as the individual with the authority to "impose, order and enforce restrictions and/or limitations on the use of water by type of use, customer class or geographic area, or other appropriate distinction depending upon the nature and extent of the water supply shortage." For a regional shortage, the Mayor in consultation with Cascade Water Alliance and Seattle Public Utilities shall activate the phased curtailment plan described in Cascade's and Seattle's water shortage plans. The restrictions and limitations to be imposed by the Mayor shall be generally consistent with the regional response directed by Cascade and Seattle. For a local shortage (the loss of the well supply that is not able to be replaced with the purchase of water from the regional system), the Mayor shall activate the phased curtailment plan and establish restrictions and limitations commensurate with the demand reduction that needs to be achieved.

### **City of Redmond Water Shortage Response Team**

The Mayor shall form a City of Redmond Water Shortage Response team to be composed of selected individuals from the various departments of the city. The team shall coordinate curtailment activities for the use of water by the city and within the city, coordinate local media messaging, coordinate customer support and education, and coordinate enforcement actions consistent with the degree of curtailment actions imposed. The team shall be guided by the communications actions, operating actions, and supply and demand management actions within the CWA and SPU response plans. For a regional shortage the team shall be guided by the specific actions and responses being called for by CWA and SPU. For a local shortage the team shall develop specific actions and responses commensurate with the demand reduction that needs to be achieved.

### **Financial Implication**

In 2008 The City of Redmond created a rate stabilization fund to minimize the financial risk stemming from low water demands that can be caused by impacts of a drought or other circumstance. The City's water utility is particularly vulnerable to lower than projected water demands because it consists of predominantly fixed costs covered primarily by rate generated revenues which are sensitive to water demands. Due to this exposure it was determined that the level of existing operating reserves could prove inadequate to offset adverse cash flows impacts during a poor water year and that a rate stabilization fund would sustain positive financial performance when needed.

The purpose of the rate stabilization fund is to provide a reserve specifically intended to address periods of short-term revenue instability, so that financial performance objectives can still be satisfied, with rates continuing to be based on water demand patterns in normal operating years. Establishing the rate stabilization required an upfront accumulation of cash which was accomplished by setting aside a portion of the existing fund balance that was in excess of the minimum threshold. The City still maintains its existing minimum operating fund balance thresholds to protect working capital needs.

**APPENDIX A:**  
**Cascade Water Alliance's**  
**Water Shortage Management Plan**



# **Cascade Water Alliance Shortage Management Plan**

Resolution 2016-18

Adopted October 26, 2016

## **Table of Contents**

1.0	Introduction and Purpose	3
2.0	Related Agreements and Water Rights	3
2.1	Cascade Joint Municipal Utilities Authority Agreement	3
2.2	Seattle Block Contract	5
2.3	Tacoma Public Utilities Water Supply Agreement	5
2.4	White River-Lake Tapps Water Rights	6
2.5	Member Water Audit Agreements	6
3.0	Plan Activation and Applicability to Cascade Members	6
3.1	Activation of SMP	6
3.2	Water Shortage Management Committee	7
3.3	Coordination with SPU and Members	7
3.4	Applicability to Cascade Members	8
3.5	Member Shortage Plans	8
3.6	Communications During Water Shortages	8
3.7	Relief of Conflicting Obligations During Water Shortages	8
4.0	Stages of Water Curtailment	9
4.1	Advisory Stage	10
4.2	Voluntary Stage	11
4.3	Mandatory Stage	13
4.4	Emergency Stage	15

## **Tables**

Table 1: Triggers for Plan Activation and of Curtailment Stages	17
Table 2: Four Stages of Curtailment	18

## **List of Appendices**

Appendix A: Actions that Can Reduce Water Usage by Distribution Systems and Customers
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## 1.0 Introduction and Purpose

Municipal water suppliers must be prepared for water shortages in order to minimize effects on the communities they serve. This Shortage Management Plan ("SMP") outlines how Cascade Water Alliance ("Cascade") will respond to a water supply shortage affecting its regional water supply.

At the present time, Cascade purchases all of its water from Seattle Public Utilities ("SPU" or "Seattle"). Various events could cause a shortage in the SPU water supply system. These include reduced snowpack in the Cascade Range due to a dry winter or early spring melt; an earthquake or other event that damages reservoirs, treatment facilities or transmission lines; water quality problems; or intentional destructive acts. These different kinds of events may cause shortages with different characteristics in terms of advance warning, severity and duration. The SMP offers flexibility for a range of appropriate responses.

As required under Washington State Department of Health ("DOH") regulations, SPU and each Member of Cascade has its own shortage management plan to guide water system operations and interaction with end-use customers in each community during a water shortage. Cascade's SMP complements the SPU and Member SMPs.

Cascade's primary role in the event of a water shortage is to coordinate responses among the Cascade Member water systems that receive water from the regional supply and SPU, as the source of the regional supply. Therefore, this SMP focuses on the communication and coordination activities to be carried out by Cascade staff during a water shortage.

## 2.0 Related Agreements and Water Rights

### 2.1 Cascade Joint Municipal Utilities Authority Agreement

*The Cascade Water Alliance Joint Municipal Utilities Authority Agreement ("Joint Agreement", 2012)* established Cascade as a municipal corporation and provides the agreement of the Cascade Members on operations. Section 7.3 of the Joint Agreement provides (emphasis added):

#### **7.3 Shortages and emergency.**

A. Shortages. Members must respond to water shortages in a collective, shared fashion under a Cascade Shortage Management Plan adopted by the Board. Resources must be shared in a manner that reduces the risk of severe shortages to each Member. **Cascade's Shortage Management Plan may include without limitation, a definition and classification of shortages, a shortage contingency**



**plan including mandatory programmatic actions among all Members in the event of shortages, allocation of authority for determining and responding to shortages, and a communications and outreach program for the public.** Members shall not be required to implement Cascade's Shortage Management Plan in areas not served by the Supply System.

In the event of shortages, Cascade shall reduce or halt Interruptible Supply before invoking the Shortage Management Plan with respect to all Members with a Full Supply Commitment. However, the Board may, by 65% Dual Majority Vote, continue service in the amounts it deems appropriate to one or more Members receiving Interruptible Supply.

**The Board may require that Members failing to comply with mandatory shortage management programs implemented under Cascade's Shortage Management Plan assume a disproportionate reduction in supply or pay penalty charges, or both.**

In the event of a Cascade-wide water shortage, Members with Independent Supply may, without penalty, decline to participate in the shortage management program for that shortage by foregoing all supply from Cascade for the duration of the emergency or shortage.

To avoid shortages resulting from emergencies or the inability to develop sufficient supplies, **the Board may, by 65% Dual Majority Vote, establish moratoria on connections or additional commitments for future water services by the Members.** A moratorium may be discontinued by a Dual Majority Vote of the Board.

B. Emergency. The Board shall include in Cascade's Shortage Management Plan policies and procedures for addressing short-term disruptions of water supply.

The Joint Agreement also provides Cascade with the authority to impose minimum demand charges on Members (which Cascade has implemented in certain instances) as follows:

A Member shall be assigned a Demand Share based on the Board's best estimate of capacity to be used by that Member. The Demand Share shall be established based on an audit of that Member's past three (3) years of water use. After three (3) years as a Member, the baseline demand and capacity obligation for that Member shall be fixed based on actual experience as a Member. **A specific Demand Share may be set by the Board to account for circumstances, such as (by way of example and not by limitation) costs of extending the Supply System to a Member, or when Independent Supplies affect regional demand patterns.**

Section 7.5 (in part and emphasis added).

## 2.2 Seattle Block Contract

*The 2013 2nd Amended and Restated Declining Block Water Supply Agreement Between the City of Seattle and Cascade Water Alliance* ("Block Contract") provides for shortage management. Section 7.2 provides:

Cascade and Seattle shall coordinate the development, adoption and implementation of their respective Water Shortage Management Plans. Before invoking its Water Shortage Management Plan, the Parties shall communicate with each other concerning current and projected water supply conditions.

Section 12.1 of the Block Contract recognizes that unilateral actions by Seattle may be needed at times due to unforeseen and unavoidable events, including water shortages. It provides (emphasis added):

The Parties recognize that unforeseen and unavoidable events may occur which would require Seattle to act unilaterally for what it deems to be in the best interest of the general public served by the Seattle Water System; including water shortages resulting from drought circumstances and temporary reduction in water supply associated with turbidity events. **Upon the occurrence of an unforeseen or unavoidable event, Seattle shall, to the extent practicable, treat its wholesale and retail customers equally and any curtailment of supply shall be imposed proportionately among these customers.** This authority to act unilaterally carries with it a unilateral responsibility of Seattle to restore, expeditiously, the Seattle Water System to its pre-emergency capability to supply the region.

As a separate matter, Section 7.3 of the Block Contract provides that if water use restrictions are imposed on SPU by the terms of its agreements with Federal and State agencies and Tribes, such restrictions will be borne proportionally by SPU and its other wholesale customers, and Cascade with respect only to the size of the Cascade Block at the time curtailment is required. In this event, Cascade and its Members will need to review the restrictions and determine appropriate short-term or long-term actions.

## 2.3 Tacoma Public Utilities Water Supply Agreement

Cascade entered into an *Agreement for the Sale of Wholesale Water* (2005) with Tacoma Public Utilities (TPU). In 2012, Cascade and TPU amended the *Agreement* to require Cascade to make specified supply capacity reservation payments to TPU, in lieu of the minimum purchase payments provided for in the 2005 agreement. Through 2042, Cascade may request that TPU provide up to 8 MGD wholesale water supply, and TPU has sole discretion to determine the availability, disruption, interruption, suspension and curtailment of such supply. At this time, Cascade is not using this supply source. At such time as Cascade begins receiving regional water supply from Tacoma, the need to incorporate

shortage response actions in coordination with TPU will be reviewed.

## **2.4 White River-Lake Tapps Water Rights**

The Water Right Permit No. S2-29920(A), issued in 2010 to Cascade for the withdrawal or diversion of water from the White River into Lake Tapps for municipal purposes, is subject to conditions including the maintenance of minimum flows in the White River and the maintenance of specified lake levels during a specified recreational period. These conditions are not considered in the SMP at this time for the following reasons: Cascade is not currently using Lake Tapps for municipal supply and Cascade's current planning vision indicates that Cascade's use of Lake Tapps is at least 20 years away. Cascade will update the SMP to include lake level triggers at such time as Lake Tapps is brought on line for municipal supply purposes.

## **2.5 Member Water Audit Agreements**

Each Member has executed a water audit agreement with Cascade. For those Members with independent supply, that agreement defines and quantifies independent supplies, documents member utilization of those supplies, and establishes production requirements imposed on Members as related to those supplies.

# **3.0 Plan Activation and Applicability to Cascade Members**

## **3.1 Activation of SMP**

Cascade may activate its SMP under the following circumstances:

- 1) When SPU activates its Water Shortage Contingency Plan, the Cascade CEO may activate the SMP and determine the appropriate stage of curtailment and, at its next meeting, the Cascade Board will take action to end or continue activation at the appropriate stage of curtailment;
- 2) In the event that a supply shortage or threat of a supply shortage requires immediate action to prevent risks to public health and safety, the Cascade CEO may declare an emergency and activate the SMP and determine the appropriate stage of curtailment and, at its next meeting, the Cascade Board will take action to end or continue activation at the appropriate stage of curtailment; or
- 3) For any other reason through action of the Cascade Board.

Unless otherwise directed by the Cascade Board, the Cascade CEO, in consultation with the Water Shortage Management Committee (Section 3.2 below), may elevate or diminish the stage of curtailment from one stage to another as appropriate.

### **3.2 Water Shortage Management Committee**

The Cascade CEO shall designate a Water Shortage Management Committee consisting of Cascade staff and Member staff to advise the Cascade CEO on implementation of the SMP. The Water Shortage Management Committee may be designated at any time, but no later than immediately following SMP activation and shall exist the duration of the water shortage. The existing Member staff committee may be designated as the Water Shortage Management Committee. The Cascade CEO may consult with the Water Shortage Management Committee by any means including in-person, by phone or by email.

### **3.3 Coordination with SPU and Members**

As provided in the Block Contract with SPU, Cascade will coordinate and communicate closely with SPU regarding activation of the SMP and a change in the stage of shortage as indicated in Section 4 below.

Cascade and its Members have a key role in the communications strategy during a regional water shortage. It is anticipated that SPU will communicate with its own retail customers, wholesale customers, large retail customers, regional stakeholders, state/federal resource agencies, and regional media. Cascade encourages its Members to communicate with retail customers, wholesale customers, local stakeholders, and local media. Cascade will help to coordinate and facilitate communications among the Members and between the regional level and the local level.

Cascade will strive to make its public messaging at each stage of curtailment consistent with SPU's messaging during the shortage event.

Cascade will maintain a current copy of SPU's Water Shortage Contingency Plan on file at Cascade offices, and encourages Members that receive water from Cascade's regional water supply system maintain a copy of both the Cascade SMP and SPU Water Shortage Contingency Plan readily available with their own Member SMP.

In addition, the Block Contract with SPU contains provisions related to SPU's supply commitment and Cascade's participation in shortages. These include financial provisions that, in the event of a voluntary or mandatory curtailment, require revision to the cost borne by Cascade. Whenever SPU moves a shortage to the voluntary, mandatory or emergency stage, Cascade will initiate discussion with SPU regarding adjustments to the supply commitment and payments due from Cascade. Cascade will inform the Members of any proposed financial treatment regarding SPU charges occurring as a result of the shortage and these discussions.

### 3.4 Applicability to Cascade Members

Consistent with the Section 7.3 of the Joint Agreement, activation of the SMP applies to Cascade Members as follows:

- **Members receiving all of their water supply from Cascade:** Required to comply with Cascade's SMP.
- **Members receiving partial supply from Cascade:** Required to comply, in portions of their service areas that receive regional supply; or to discontinue use of Cascade supply during the water shortage.
- **Members not receiving Cascade supply.** Not required to comply with Cascade's SMP.
- **Members with interruptible supply.** *None at this time.*

### 3.5 Member Shortage Plans

DOH regulations at WAC 246-290-100(4)(f) require water utilities to have their own water shortage response plan. These are typically submitted to DOH every six years with their comprehensive water system plan update. Cascade recommends that Members review and revise their water shortage response plans to ensure the Member plans use similar stages of curtailment as listed in the Cascade SMP, and that provisions in the Member SMPs support effective coordination with SPU and Cascade during a water shortage.

### 3.6 Communications During Water Shortages

In addition to the communication actions listed for each curtailment stage in Section 4, in the event of a water shortage that requires this SMP to be activated, Cascade will coordinate closely with its Members and SPU regarding public communications. It is anticipated that SPU will take the lead on communications involving regional media such as major radio, television and newspaper outlets. Members will have the primary responsibility for communicating directly with their own customers and local communities. Cascade will coordinate communications among Members and SPU and will assist its Members issue consistent and effective communications to the communities that they serve.

### 3.7 Relief of Conflicting Obligations During Water Shortages

When the SMP is activated, and with each stage of curtailment, Cascade will review and adjust production requirements and minimum demand shares to avoid potentially contradictory obligations of members. Since minimum production requirements may be inconsistent with desired or mandated demand reductions, and since minimum demand shares provide financial disincentives to demand reduction, Cascade will determine necessary and appropriate

adjustments to provide for consistent incentives and impacts among members. Specifically:

- The Cascade CEO, in consultation with the Water Shortage Management Committee and each affected Member, will recommend to the Board to amend or suspend production requirements so that demand reduction and supply production objectives are not in conflict, while recognizing that increased reliance on independent supplies is a desirable outcome when addressing a shortage from Cascade's regional sources.
- The Cascade CEO, in consultation with the Water Shortage Management Committee and each affected Member, will recommend to the Board to amend or suspend minimum demand shares in order to encourage reduced demand on impacted regional sources.
- In the event that a shortage is caused by a shortage in independent supply resulting in a shortage that Cascade chooses to share in, the Cascade CEO, in consultation with the Water Shortage Management Committee and each affected Member, will recommend to the Board to make adjustments specific to each Member to reflect the unique circumstance of the shortage.

The recommended adjustments will be taken to the Board for approval or adjustment.

## 4.0 Stages of Water Use Curtailment

Cascade's SMP has four stages of curtailment that coincide with the stages of curtailment in SPU's Water Shortage Contingency Plan:

- Advisory Stage
- Voluntary Stage
- Mandatory Stage
- Emergency Stage

These four stages are designed for progressive implementation during a drought or other long-range disruption of water supply. However, any of the four stages can be activated from the outset of the event as appropriate and the stage of curtailment maybe elevated or diminished from one stage to another as appropriate.

Sections 4.1 through 4.4 provide details in each of the four stages of curtailment. Table 1 provides a summary of the triggers of each stage. Table 2 provides a summary of actions to be taken in each stage.

## **4.1 Advisory Stage**

This stage is advisory only, and does not require curtailment actions by water users. The public is informed as early as meaningful data are available that a water shortage may occur.

### **4.1.1 Objectives of Advisory Stage**

- Prepare Cascade, its Members and water users for a potential water shortage, thereby allowing for adequate planning and coordination.
- Support distribution system management actions by Cascade Members that can help to forestall or minimize the need for more stringent demand or supply management actions.

### **4.1.2 Triggers of Advisory Stage**

- 1) Upon notice from SPU that it has activated the Advisory Stage of their Water Shortage Contingency Plan, the Cascade CEO may activate the SMP and the Advisory Stage and, at its next meeting, the Cascade Board will take action to end or continue activation; or
- 2) In the event that a supply shortage or threat of a supply shortage requires immediate action to prevent risks to public health and safety, the Cascade CEO may declare an emergency and activate the SMP and the Advisory Stage and, at its next meeting, the Cascade Board will take action to end or continue activation; or
- 3) The Cascade Board may act to authorize activation of Cascade's Advisory Stage.

### **4.1.3 Communication Actions During Advisory Stage**

Once the Advisory Stage has been activated by Cascade, Cascade will:

- Inform Cascade Members that they are required to activate their Advisory Stage (or equivalent actions per each Member's individual SMP). This will not apply to Cascade Members exempted per Section 3.4 of this SMP.
- Establish a regular communication mechanism to keep Cascade Members and the Cascade Board informed regarding stages of curtailment; water supply conditions; actions taken by Cascade Members and others in the region; and information that should be communicated to the public, local parks departments, large customers, landscape industry professionals and others.
- Request Cascade Members carry out supply-side management actions they will take during the Advisory Stage to reduce use of water for local water distribution system operations,

and compile information on the actions taken. For Members that have independent supply, this may include relying more heavily on these supplies where feasible, to reduce pressure on the Cascade regional supply.

- If requested by SPU, participate on SPU's Water Shortage Advisory Group to help develop public information messages and materials and to provide input on Cascade Member actions.
- Assist Cascade Members acquire and distribute public information materials as needed. This may include materials from SPU or other sources, as appropriate. Post information on Cascade's web site regarding the Advisory Stage.

#### **4.1.5 Operating Actions of Advisory Stage**

- Cascade will initiate planning and preparation for actions under an elevated stage of curtailment, including an assessment of potential staffing impacts, training needs and communications strategies.
- Cascade will assist Members plan specific actions under an elevated stage of curtailment, including distribution system actions by the Member and voluntary water use curtailment actions Members can suggest to their end-use customers if the elevated stage of curtailment is activated.

## **4.2 Voluntary Stage**

If supply conditions indicate the need for actions greater than those in the Advisory stage, the plan moves to the Voluntary Stage which relies on voluntary cooperation and support of customers to meet target consumption goals. During this stage, specific voluntary actions are suggested for residential and commercial customers.

### **4.2.1 Objectives of Voluntary Stage**

- Encourage Members to take distribution system management actions to further stretch available supply.
- Encourage customer voluntary actions to maintain or reduce demand to meet target consumption levels.
- Forestall or minimize need for later more stringent demand or supply management actions.
- Maintain drinking water quality at acceptable levels throughout the shortage.



#### **4.2.2 Triggers of Voluntary Stage**

- 1) Upon notice from SPU that it has activated the Voluntary Stage of their Water Shortage Contingency Plan, the Cascade CEO may activate the Voluntary Stage and, at its next meeting, the Cascade Board will take action to end or continue activation; or
- 2) In the event that a supply shortage or threat of a supply shortage requires immediate action to prevent risks to public health and safety, the Cascade CEO may declare an emergency and activate the Voluntary Stage and, at its next meeting, the Cascade Board will take action to end or continue activation; or
- 3) The Cascade Board may authorize activation of Cascade's Voluntary Stage.

#### **4.2.3 Communication Actions of Voluntary Stage**

Once the Voluntary Stage has been activated by Cascade, Cascade will:

- Inform Cascade Members that they are required to activate their Voluntary Stage (or equivalent actions per each Member's individual SMP). This will not apply to Cascade Members exempted per Section 3.4 of this SMP.
- Request Cascade Members report to Cascade regarding supply-side management actions they will take during the Voluntary Stage. For Members that have independent supply, this may include relying more heavily on these supplies where feasible, to reduce pressure on the Cascade regional supply.
- Request Cascade Members communicate with their largest customers to request percentage reductions.
- Communicate regularly with Cascade Members regarding information that should be communicated to the public, local parks departments, large customers, landscape industry professionals and others. At the Voluntary Stage, this will include specific recommendations on how customers can reduce water consumption, including links to the [savingwater.org](http://savingwater.org) website or equivalent information resources.
- Communicate with the Washington State Department of Health regarding actions being taken by Cascade and its Members.
- If requested by SPU, participate on SPU's Water Shortage Advisory Group to help develop public information messages and materials and to provide input on Cascade Member actions.

- Assist Cascade Members acquire and distribute public information materials as needed. Review information from SPU, including materials in the Water Shortage Contingency Plan, regarding actions customers can take to reduce their water consumption. As appropriate, post information for Cascade Members and their customers on Cascade's web site regarding the Voluntary Stage. Appendix A provides examples of water saving actions customers can take.

#### **4.2.4 Operating Actions in Voluntary Stage**

- Cascade will assess revenue implications and potential remedies and report to the Cascade Board.
- Cascade will initiate planning and preparation for actions under an elevated stage of curtailment, including an assessment of potential staffing impacts, training needs and communications strategies. Assist Cascade Members to identify mandatory restrictions that may apply during the Mandatory Stage, if it is needed.

### **4.3 Mandatory Stage**

If supply conditions indicate a need for actions greater than those in the Voluntary stage, the Mandatory Stage would be implemented. This stage prohibits or limits certain water actions. Cascade will rely on its Members to enforce mandatory actions, using techniques as appropriate to each service area or jurisdiction.

#### **4.3.1 Objectives of Mandatory Stage**

- Achieve targeted goals for reducing consumption, by restricting certain water uses. Goals will be determined in consultation with SPU, based on the characteristics and severity of the water shortage.
- Ensure that adequate water supply will be available for the duration of the supply shortage.
- Minimize the disruption to customers' lives and businesses while meeting target consumption goals.
- Maintain drinking water quality at acceptable levels throughout the shortage.
- Promote equity among Cascade Members in responding to the supply shortage.

#### **4.3.2 Triggers of Mandatory Stage**

- 1) Upon notice from SPU that it has activated the Mandatory Stage of their Water Shortage

Contingency Plan, the Cascade Board will consider activation of the Mandatory Stage; or

- 2) In the event that a supply shortage or threat of a supply shortage requires immediate action to prevent risks to public health and safety, the Cascade CEO may declare an emergency and activate the Mandatory Stage and, at its next meeting, the Cascade Board will take action to end or continue activation; or
- 3) The Cascade Board may authorize activation of Cascade's Mandatory Stage.

#### **4.3.3 Communication Actions of Mandatory Stage**

Once the Mandatory Stage has been activated by Cascade, Cascade will:

- Inform Cascade Members that they are required to activate their Mandatory Stage (or equivalent actions per each Member's individual SMP). This will not apply to Cascade Members exempted per Section 3.4 of this SMP. Enforcement actions may be needed in the Mandatory Stage. Cascade expects each Member to enforce restrictions in a manner suitable to the local service area or to work with other local governments having enforcement powers to do so.
- Gather information from SPU regarding any water quality or water pressure problems, if any, that are identified or that may possibly occur at the mandatory stage, and communicate these to Cascade Members management, operations staff and public affairs staff.
- Continue communication actions from the Voluntary Stage, with modifications as appropriate for the Mandatory Stage (as determined in consultation with SPU and Cascade Members).

#### **4.3.4 Operating Actions of Mandatory Stage**

- Cascade will continue operating actions from the previous stages, and:
- Cascade will initiate planning and preparation for Emergency Stage actions, including an assessment of potential staffing impacts, training needs, communications strategies. Cascade will assist Members to plan specific actions that may be needed if the Emergency Stage is activated.
- If necessary the Board will consider enforcement actions against any Members who do not comply with Mandatory Stage actions, as allowed under the Cascade Joint Agreement.

## **4.4 Emergency Stage**

At this stage Cascade and its Members recognize that a critical water situation exists and that, without additional significant curtailment actions a shortage of water for public health and safety is imminent. This would be used as the last stage of a progressive drought or similar situation, or to address an immediate crisis such as a disruption to water sources, treatment or transmission facilities. This type of situation has never occurred in Cascade or SPU history, but could occur during a very severe drought or under emergency conditions such as a major earthquake that ruptures transmission pipelines.

### **4.4.1 Objectives of Emergency Stage**

- Strive to meet the water use goals established for this stage, recognizing that customers' lives and businesses may be significantly impacted in order to achieve necessary water savings. Goals will be determined in consultation with SPU, based on the characteristics and severity of the water shortage.
- Promote equity among Cascade Members in responding to the supply shortage.

### **4.4.2 Triggers of Emergency Stage**

- 1) Upon notice from SPU that it has activated the Emergency Stage of their Water Shortage Contingency Plan, the Cascade Board will consider activation of the Emergency Stage; or
- 2) In the event that a supply shortage or threat of a supply shortage requires immediate action to prevent risks to public health and safety, the Cascade CEO may declare an emergency and activate the Emergency Stage and, at its next meeting, the Cascade Board will take action to end or continue activation; or
- 3) The Cascade Board may authorize activation of Cascade's Emergency Stage.

If SPU activates its Emergency Stage, Cascade anticipates that Section 12.1 (Emergency Events) of the Block Contract would also be triggered. This section permits SPU to curtail supplies to Cascade, on a proportional basis with its retail customers and other wholesale customers. In the event of significant curtailment, Cascade and its Members would need to activate their SMPs in order to manage the situation effectively.

### **4.4.3 Communication Actions of Emergency Stage**

Once the Emergency Stage has been activated by Cascade, Cascade will:

- Inform Cascade Members that they are required to activate their Emergency Stage (or

equivalent actions per each Member's individual SMP). This will not apply to Cascade Members exempted per Section 3.4 of this SMP. Enforcement actions may be needed in the Emergency Stage. Cascade anticipates each Member will enforce restrictions in a manner suitable to the local service area or will work with other local governments having enforcement powers to do so.

- Continue and intensify communication actions from the previous stages, with modifications as appropriate for the Emergency Stage (as determined in consultation with SPU and Cascade Members). This includes, but is not limited to, Cascade's role in supporting effective communications between individual Cascade Members and SPU.
- For Members that have independent supply, request they rely as much as possible on these supplies, to reduce pressure on the Cascade regional supply.
- Alert Members of particular operational problems that may occur with system-wide reduced water consumption, and communicate these to Cascade Members management, operations staff and public affairs staff and on the Cascade website. These could include, for example, taste and odor problems; and reduced pressures in Member distribution systems.
- Assist Cascade Members to define and communicate exemptions for medical facilities and other facilities having key responsibilities for public health and safety.

#### **4.4.5 Operating Actions of Emergency Stage**

- Cascade will continue to monitor staffing impacts, training needs and communications strategies and make adjustments where feasible to enhance effectiveness of the regional water shortage response.
- If feasible and applicable, Cascade will make staff resources available to Cascade Members to assist them in the water shortage response. This may include temporary reassignment of Cascade staff; and/or outsourcing of specialized functions or additional staffing resources that could provide assistance to Cascade Members.
- If volunteer services are available and deemed valuable to the water shortage response, and if desired by the Members, Cascade will coordinate volunteers on behalf of its Members.
- If necessary the Board will consider enforcement actions against any Members who do not comply with Emergency Stage actions, as allowed under the Cascade Joint Agreement.

**TABLE 1: Triggers for Plan Activation and of Curtailment Stages**

TRIGGERS	CASCADE SMP/Stage	MEMBERS
<p>SPU activation <u>plus</u>  CEO activation Cascade (Board confirmation); or</p> <p>CEO declaration of emergency (Board confirmation at next meeting); or</p> <p>Board Action</p>	<p>Activation to any of the 4 Stages</p>	
<p>SPU activates to Advisory Stage <u>plus</u>  CEO activation (Board confirmation at next meeting); or</p> <p>CEO declaration of emergency (Board confirmation at next meeting); or</p> <p>Board Action</p>	<p>Advisory Stage</p>	<p>Cascade inform and advise Members</p>
<p>SPU activates to Voluntary Stage <u>plus</u>  CEO activation (Board confirmation at next meeting); or</p> <p>CEO declaration of emergency (Board confirmation at next meeting); or</p> <p>Board Action</p>	<p>Voluntary Stage</p>	<p>Member compliance required</p>
<p>SPU activates to Mandatory Stage <u>plus</u>  Board Action; or</p> <p>CEO declaration of emergency (Board confirmation at next meeting). or</p> <p>Board Action</p>	<p>Mandatory Stage</p>	<p>Member compliance required</p>
<p>SPU activates to Emergency Stage <u>plus</u>  Board Action; or</p> <p>CEO declaration of emergency (Board confirmation at next meeting); or</p> <p>Board Action</p>	<p>Emergency Stage</p>	<p>Member compliance required</p>

**Table 2: Four Stages of Curtailment**

	<b>Advisory</b>	<b>Voluntary</b>	<b>Mandatory</b>	<b>Emergency</b>
<b>Theme of Public Messages from SPU</b>	A shortage may occur soon; get ready.	A shortage has occurred. We are requesting voluntary curtailment to reduce demand by x percent.	A severe shortage has occurred. Mandatory curtailment is necessary and specific uses of water are restricted.	An emergency shortage has occurred. Mandatory curtailment is necessary and public health and safety uses are the priority.
<b>Cascade Communication Actions</b>	<ul style="list-style-type: none"> <li>• Inform Members they are required to activate their Advisory Stage (see exemptions).</li> <li>• Establish a regular communication mechanism with Members.</li> <li>• Request Cascade Members carry out supply-side management actions.</li> <li>• Participate on SPU's Water Shortage Advisory Group.</li> <li>• Assist Members to acquire and distribute public information materials.</li> </ul>	<ul style="list-style-type: none"> <li>• Inform Members they are required to activate their Voluntary Stage.</li> <li>• Request Cascade Members report to Cascade regarding supply-side management actions. For Members that have independent supply, this may include relying more heavily on these supplies.</li> <li>• Request Cascade Members communicate with their largest customers.</li> <li>• Communicate regularly with Cascade Members.</li> <li>• Communicate with the Washington State Department of Health.</li> <li>• Participate on SPU's Water Shortage Advisory Group.</li> <li>• Assist Cascade Members to acquire and distribute public information materials.</li> </ul>	<ul style="list-style-type: none"> <li>• Inform Cascade Members that they are required to activate their Mandatory Stage, including enforcement as appropriate.</li> <li>• Gather information from SPU on water quality or pressure problems, and communicate these to Members.</li> <li>• Continue communication actions from the Voluntary Stage, with modifications as appropriate for the Mandatory Stage.</li> </ul>	<ul style="list-style-type: none"> <li>• Inform Cascade Members that they are required to activate their Emergency Stage, including enforcement as appropriate.</li> <li>• Continue and intensify communication actions from the Mandatory Stage.</li> <li>• For Members that have independent supply, request they rely as much as possible on these supplies.</li> <li>• Alert Members of particular operational problems that may occur with system-wide reduced water consumption.</li> <li>• Assist Cascade Members to define and communicate exemptions for public health and safety.</li> </ul>
<b>Cascade Operating Actions</b>	<ul style="list-style-type: none"> <li>• Initiate preparation for Voluntary Stage.</li> </ul>	<ul style="list-style-type: none"> <li>• Assess revenue implications remedies.</li> <li>• Initiate preparation for Mandatory Stage.</li> </ul>	<ul style="list-style-type: none"> <li>• Continue operating actions from the Voluntary Stage</li> <li>• Initiate preparation for Emergency Stage.</li> <li>• If necessary consider enforcement actions against any non-complying</li> </ul>	<ul style="list-style-type: none"> <li>• Continue operating actions from Mandatory Stage.</li> <li>• Make staff resources available to Cascade Members.</li> <li>• Coordinate volunteers on behalf of Members.</li> </ul>

## **APPENDIX A**

### **POSSIBLE ADVISORY STAGE WATER CONSERVATION TIPS FOR CUSTOMERS (Adapted from SPU 2006 WSCP)**

#### ***Conserve Inside***

For most households, the vast majority of water is used indoors. Taking conservation actions and installing efficient fixtures help reduce your water use year-round. There are also ways to conserve water in outdoor uses and at work. Below are suggested actions:

- Fix leaking faucets and toilets.
- Wash only full loads in the dishwasher and clothes washer.
- Minimize faucet use when brushing your teeth, shaving and washing dishes.
- Don't pre-rinse dishes unless you need to. Most new dishwashers don't require pre-rinsing.
- Save lukewarm water for watering plants, etc. while you wait for hot water in kitchens and showers.
- If you are buying a new toilet, look for a WaterSense model.
- If you are buying a new washing machine, purchase a high-efficiency model. WashWise rebates may be available for qualified machines.

#### ***Conserve Outside***

Make the most of the water you will use in the spring and summer:

- Aerate lawns in the spring to better absorb water.
- Mulch planting beds to decrease evaporation.
- Select the right plants for the right place – contact SPU or see our website for information.
- Tune-up and improve your irrigation system - rebates may be available.
- Wash your cars at locations that recycle their water.

Note: For more information on home water conservation tips for inside and out, visit [www.savingwater.org](http://www.savingwater.org) or call 684-7283 (684-SAVE)

#### ***Conserve at Work***

Businesses and institutions can reduce water use and lower utility costs by adopting conservation practices and replacing inefficient equipment or operations.

- Check for leaks.
- Use a broom, instead of a hose, to routinely clean driveways and sidewalks
- Turn off water-using equipment when not in use, including dishwashers, garbage disposals, and food troughs.
- Upgrade equipment efficiency -rebates may be available.
- Increase employee awareness of water conservation.



**POSSIBLE VOLUNTARY STAGE CUSTOMER WATER  
SAVING ACTIONS  
(Adapted from SPU 2006 WSCP)**

The following voluntary actions are being requested of all customers:

***SET A GOAL: Such as use 10% less water***

Most customers can easily save 10% by choosing several items from the menu of water saving actions below. If you routinely do outdoor watering, select those actions first. Set a goal to reduce your water use by 10% from the amount you used during the same billing period last year. Most utility bills contain your water consumption for each billing period. Much of the 10% can probably be achieved through conservation actions that are wise to do all the time. If that is not sufficient, then the special curtailment actions listed here can be implemented during the duration of the supply problem.

***REDUCE OUTDOOR WATER USE***

Conservation Actions:

- **Avoid watering** between 10 AM and 7 PM to reduce evaporation.
- **Stop obvious water waste** such as gutter flooding, sidewalk and street watering, and fix leaks.
- **Never leave a hose running**, always use a shut-off nozzle.
- **Use a broom** rather than a hose or pressure washer to clean sidewalks and driveways.

Curtailment Actions:

- **Reduce lawn watering** (twice a week or less if possible).
- **Let your lawn go dormant.** Customers who choose to not water their lawns should water deeply once each rainless month to keep grass roots alive. To avoid runoff when you water, if the water puddles, cycle your sprinkler on and off until water is absorbed.
- **Refrain from filling** empty pools and hot tubs.
- **Turn off water features** and fountains.
- **Wash vehicles only at car washes that recycle their water.**

***REDUCE INDOOR WATER USE***

Conservation Actions:

- **Install a water efficient WaterSense toilet.** These toilets have proven to perform well and give long-term water savings. Replacing a frequently used old toilet with a new efficient toilet can save most households in utility bills. Check [www.savingwater.org](http://www.savingwater.org) for WaterSense toilet models.
- **Install a high-efficiency clothes washer.** New washers are typically one-third more water efficient than old washers.
- **Wash only full loads in the clothes washer and dishwasher,** or choose an appropriate load-size setting for the number of items in the washer.
- **Turn off the tap** while brushing your teeth, hand-washing dishes or shaving.
- **Fix leaky faucets and toilets.** Put several drops of food coloring in your toilet tank. After 20 minutes, if you have color in the bowl, you have a slow leak that over time can amount to a lot of water.
- **Install an efficient showerhead.** New showerheads work well and use much less water than old high-flow models.
- **Install an efficient faucet aerator.** Replace your older bathroom faucet nozzle (aerator) with one that uses one gallon per minute or less.

Curtailment Actions:

- **Spend one minute less in the shower.** Try to limit showers to five minutes or less.
- **Flush your toilet less often.** Toilet flushing is the largest water use inside the home. As the saying goes, "If it's yellow, let it mellow."

## **REDUCE WATER USE AT WORK**

There are a wide variety of opportunities for businesses and agencies to reduce their water use and operating expenses.

### Conservation Actions:

- **Check cooling towers.** Cooling towers - and the ways that they regulate water use – represent real opportunities for improving water efficiency.
- **Check for and fix leaks.** Toilet and urinal leaks are very common. Investigate obvious or suspected leaks.
- **Use a broom,** instead of a hose or pressure washer, to routinely clean driveways and sidewalks.
- Turn off water-using equipment when not in use, including open hoses, dishwashers, garbage disposals, and food troughs.
- **Check air conditioners, refrigerators, and ice machines.** If your company's air conditioners or refrigerators use water-cooled condensers, investigate air-cooled equipment for possible efficiencies. Rebates are available. Visit [www.savingwater.org](http://www.savingwater.org).
- **Install water-efficient toilets, urinals and faucets** in public and employee restrooms. Replacing old toilets, urinals, and faucet aerators with efficient ones can produce substantial savings. Rebates are available. Visit [www.savingwater.org](http://www.savingwater.org).
- **Reuse process water.** Water used in industrial and manufacturing processes should be reused as often as possible. Rebates are available. Visit [www.savingwater.org](http://www.savingwater.org).
- Hospitality businesses can offer guests the option of clean linens each day.
- **Increase employee awareness of water conservation** through management memos or newsletter messages. Install signs that encourage water conservation in restrooms or work areas where water is used. For additional work-related conservation tips, call (206) 343-8505.

### Curtailment Actions:

- **Reduce outdoor watering** (twice a week or less if possible). Rebates are available for smart irrigation technologies. Visit [www.savingwater.org](http://www.savingwater.org).
- **Minimize vehicle washing,** defer or use a water recycling car wash.
- **Turn off** decorative water fountains.
- **Serve water only on request** at restaurants. Avoid thawing with running water.

**For home water conservation tips, visit [www.savingwater.org](http://www.savingwater.org) or call (206) 684-7283 (684-SAVE)**

**APPENDIX B:**  
**Seattle Public Utilities’**  
**Water Shortage Contingency Plan**

**SEATTLE PUBLIC UTILITIES**  
**WATER SHORTAGE CONTINGENCY PLAN**

**July 2006**

**SUPPLEMENT TO THE SEATTLE PUBLIC UTILITIES**  
**2007 WATER SYSTEM PLAN**

# SEATTLE PUBLIC UTILITIES WATER SHORTAGE CONTINGENCY PLAN TABLE OF CONTENTS

<b>Section 1</b> .....	p.1
Introduction .....	p.1
Objective of Water Shortage Contingency Plan (WSCP).....	p.1
Integration into Other Emergency Planning .....	p.1
Relationship to Wholesale Customers' WSCPs .....	p.1
 <b>Section 2 Overview of Drought Management Strategy</b> .....	p.3
Types of Droughts by Season .....	p.3
Winter/Spring Drought .....	p.3
Summer/Fall Drought .....	p.4
Fall/Early Winter Drought .....	p.4
Managing Instream Flows During Water Shortages .....	p.4
Drought Management Strategy .....	p.5
Monitoring Current Conditions .....	p.5
Forecasting .....	p.5
Communication .....	p.6
Operational Adjustments .....	p.6
Curtailment Actions .....	p.7
Alternative Water Supplies .....	p.7
Water Shortage Contingency Plan Principles .....	p.8
 <b>Section 3 Phased Curtailment Plan</b> .....	p.10
Overview of Plan Stages .....	p.10
Preparation for Implementing WSCP Stages .....	p.10
Preparation Between Plan Stages .....	p.11
Advisory Stage .....	p.12
Objectives .....	p.12
Triggers .....	p.12
Public Message .....	p.12
Communication Actions .....	p.12
Operating Actions .....	p.13
Voluntary Stage .....	p.14
Objectives .....	p.14
Triggers .....	p.14
Public Message .....	p.14
Communication Actions .....	p.14
Operating Actions .....	p.15
Supply and Demand Management Actions .....	p.16

Mandatory Stage .....	p.17
Objectives .....	p.17
Triggers .....	p.17
Public Message .....	p.17
Communication Actions .....	p.17
Operating Actions .....	p.18
Supply and Demand Management Actions .....	p.18
Emergency Curtailment Stage .....	p.21
Objectives .....	p.21
Triggers .....	p.21
Public Message .....	p.21
Communication Actions .....	p.21
Operating Actions .....	p.22
Supply and Demand Management Actions .....	p.22
<b>Section 4 Non-Drought Water Emergency Curtailment Plan .....</b>	<b>p.24</b>
Introduction .....	p.24
Types of Potential Non-Drought Water Emergencies .....	p.24
Supply and Demand Management During Non-Drought Water Emergencies .....	p.25
 <b>Attachments</b>	
Attachment A - Examples of Past Regional Drought Experiences	
Attachment B - Water Shortage Response Team and Water Shortage Advisory Group Membership and Roles	
Attachment C - Possible Demand Management Scenarios	
Attachment D - Estimated Cumulative Costs and Revenue Losses For WSCP Stages	
Attachment E - Contact List for WSCP	
Attachment F - Possible Advisory Stage Water Conservation Tips for Customers	
Attachment G - Possible Voluntary Stage Customer Water Saving Actions	
Attachment H - Possible Exemptions From Water Use Restrictions	

# **SEATTLE PUBLIC UTILITIES WATER SHORTAGE CONTINGENCY PLAN**

## **SECTION I**

### **INTRODUCTION**

This plan provides guidelines for Seattle Public Utilities (SPU) to manage water supply and demand in the event of a supply problem. Such problems could include imminent supply disruptions resulting from a major pipeline failure as well as forecasted water supply shortages due to droughts. “Water shortage” as is discussed in this document means that SPU will not have the normal amount of water to provide to its customers. It is extremely improbable that SPU would ever run out of water. The stages noted in the plan will be implemented depending on the magnitude of the water shortage. This document supplements the *2007 Water System Plan*, and updates the April 2001 Water Shortage Contingency Plan (WSCP).

### **OBJECTIVE OF WSCP**

The objective of the WSCP is to establish actions and procedures for managing water supply and demand during water shortages. The plan enables SPU to maintain essential public health and safety and minimize adverse impacts on economic activity, environmental resources and the region's lifestyle.

### **INTEGRATION INTO OTHER EMERGENCY PLANNING**

A discussion of how SPU will respond to non-drought water emergencies, such as a major transmission pipeline break, is provided in Section 4 of this plan.

### **RELATIONSHIP TO WHOLESALE CUSTOMERS' WSCPS**

There are approximately 1.45 million people living in the areas served by SPU and our wholesale water customers. SPU provides water to utilities in much of King County and a small part of Snohomish County. SPU has contracts with 21 wholesale customers, including the Cascade Water Alliance, which wholesales water to eight utilities in the region. Water supply disruptions affect Seattle, Seattle's wholesale customers, and their respective retail customers.

SPU's wholesale contracts include a provision that wholesale customers will assist and support emergency curtailment measures required to manage demand during an emergency or shortage. This plan has been developed by SPU, in consultation with its wholesale customers and other participants, based on the premise that an effective demand management strategy must be regionally consistent. This is based on several considerations:

- Public support and cooperation is likely to be higher if actions are equitable, i.e., all water users are experiencing the same service level and degree of hardship.
- A unified message and approach is easier to understand and distribute through the media, which is key in communicating information to the public.
- Consistency makes it easier for Seattle to forecast demand reductions, which is essential to effectively manage the system during a water shortage.



## SECTION 2

### **OVERVIEW OF DROUGHT MANAGEMENT STRATEGY**

This Water Shortage Contingency Plan focuses on weather-related water shortages – generally referred to as “droughts.” Droughts are naturally occurring unpredictable weather events of varying frequency, duration and severity. In the region served by the Seattle Regional Water System, available data indicate a very low probability of a multi-year drought, but the region has experienced short-term droughts.

This region is generally faced with a relatively dry summer period. In the Seattle area, only about 5 of our 37 inches of annual precipitation fall during the summer months (based on National Weather Service data for 30-year average at SeaTac Airport). The Seattle Regional Water System operates with an annual refill and drawdown cycle of its water supply storage reservoirs. Highly unusual weather events affect this cycle and can cause water shortages.

#### **TYPES OF DROUGHTS BY SEASON**

The types of droughts that affect the Seattle Regional Water System range from poor snowpack accumulation in the winter to delayed onset of rains in the fall. Since the nature of these droughts varies, Seattle’s response will also vary. The types of droughts the system has experienced can be categorized by season as follows:

##### **Winter/Spring Drought**

Low snowpack is the primary issue with winter/spring droughts. While a below normal snowpack may not lead to poor water supply conditions if ample spring rains occur, caution is used in managing the water supply in these situations because rainfall is inherently difficult to forecast. Below normal snowpack can occur during a winter when mountain temperatures are warm, when precipitation is below average, when intense rainfall events melt off low to mid-elevation snow cover, or through a combination of these factors. Tracking El Niño events, which are typified in the Pacific Northwest by warmer and drier than average winter conditions, can alert water managers to the increased potential of a winter/spring drought. Seattle’s use of the dynamic rule curve – varying reservoir storage targets based on real-time snowpack measurements and soil moisture estimates – in these types of droughts helps to ensure that our reservoirs are as close to full as possible at the start of the summer drawdown cycle.

When winter/spring drought conditions result in low water supply availability, water use restrictions may need to be imposed because the potential for water use reductions by customers is greater in the spring and summer, there is much uncertainty about impending summer weather which is so influential on demand, and weather forecasts of when the fall rains will begin are not reliable. These conditions generate uncertainty about whether water stored in the spring will be sufficient to meet demands until supplies are replenished in the fall. This can make the imposition of water use restrictions in the

spring and summer necessary, despite the fact that in some years no water shortfall may ever really develop.

### **Summer/Fall Drought**

In years in which reservoirs refill as normal in early summer, droughts can still develop over the summer and extend into the fall if summer demands are high and inflows to the reservoirs drop below normal levels for an extended period of time. These types of droughts require careful monitoring of summer demands and water supply.

Unfortunately, it is not possible to accurately predict in advance the timing and amount of the fall rains. When these types of droughts become apparent, and are significant, Seattle will ask for curtailments and prepare to use emergency storage at Chester Morse Lake should it be needed later in the year (see below for details on the pumping plants at Chester Morse Lake).

### **Fall/Early Winter Drought**

Fall is the time when demands for fish habitat needs are especially high and the ability for people to cut back on water is limited since little water is being used for landscape irrigation. These factors can make fall droughts particularly challenging. Droughts can occur in the fall, and extend into the early winter. When the normal rainy season develops later than normal, storage reservoirs can be depleted to minimum levels. For this reason, the emergency pumping plants at Chester Morse Lake are maintained and may be used if needed to allow use of “dead storage” below the lake’s natural outlet. Other emergency supplies that may be activated in these types of droughts are discussed later in this WSCP.

Attachment A provides examples of past drought events that resulted in Seattle activating its Water Shortage Contingency Plan.

## **MANAGING INSTREAM FLOWS DURING WATER SHORTAGES**

The management of stream flows downstream of Seattle’s water storage and diversion facilities is a critical consideration in managing water resources during water shortages. In addition to meeting the needs of SPU’s retail and wholesale customers, the Cedar and South Fork Tolt rivers are managed to protect instream resources. Seattle has ongoing formal and informal agreements with state, federal and local resource agencies, Indian Tribes and the U.S. Army Corps of Engineers that help guide how it manages streamflows. Streamflow management in the South Fork Tolt is governed by the South Fork Tolt River Settlement Agreement. Cedar River flows are governed by the Cedar River Instream Flow Agreement, a component of the Cedar River Watershed Habitat Conservation Plan (HCP). These agreements provide guaranteed flow regimes as well as adaptive features to ensure that water is released from Seattle’s mountain storage reservoirs in a manner that provides beneficial conditions for salmon and other species downstream of the Seattle’s reservoirs. During substantial portions of the year, total runoff into the Cedar River and South Fork Tolt basins can exceed the amount required to meet municipal demands and the guaranteed flow regime. This additional water is managed adaptively and in collaboration with the Cedar River Instream Flow

Commission and Tolt Fisheries Advisory Committee in an effort to further enhance conditions for instream resources. The protective provisions of the governing agreements are particularly important during droughts and associated periods of low stream flow.

The Cedar River also provides approximately half of the inflow to Lake Washington on an annual average basis. The U.S. Army Corps of Engineers manages Lake Washington lake levels as part of its Lake Washington Ship Canal Project (Hiram Chittenden Locks in Ballard) which connects Lake Washington to the saltwater of Puget Sound. Their management objectives include providing water flows at the Locks for navigation, fish passage, and control of the salt water intrusion caused by operation of the Locks.

## **DROUGHT MANAGEMENT STRATEGY**

Seattle's strategy for dealing with the hydrologic uncertainty associated with drought management involves several components:

- Monitoring current conditions,
- Forecasting,
- Communication,
- Operational Adjustments,
- Curtailment Actions, and
- Alternative Water Supplies.

During years in which precipitation is significantly below normal, Seattle expands and utilizes these management strategies as explained below.

### **Monitoring Current Conditions**

To deal with hydrologic uncertainty in real-time and in longer term planning horizons, Seattle's water resource management team uses a number of available informational and data gathering sources. Seattle contracts with the U.S. Geological Survey (USGS) to provide continuous streamflow monitoring and data collection services. Strategic placement of USGS stream gauging stations provides real-time information for understanding the hydrologic state of the water supply and river systems. Seattle also contracts with the Natural Resources Conservation Service (NRCS) to provide real-time snow monitoring and weather data collection services.

### **Forecasting**

Through the National Oceanic and Atmospheric Administration (NOAA), Seattle regularly monitors daily weather forecasts (National Weather Service Seattle Forecasting Office), mid-range weather forecasts (National Centers for Environmental Prediction), 30- and 90-day and multi-season climate outlooks (Climate Prediction Center), and daily hydrometeorological forecasts (Northwest River Forecast Center in Portland, Oregon). The internet provides access to vast amounts of additional useful information to assist SPU in forecasting. For example, NOAA's web information on El Niño/La Niña provides a wealth of timely information on current and forecasted El Niño and La Niña conditions with enough lead time for water resource managers to prepare for such events.

Seattle uses a number of analytical tools for forecasting hydrologic conditions as they relate to water supply and fisheries including:

- Streamflow forecasts prepared by the USGS and NRCS.
- Weather, climate and river forecasts from NOAA.
- In-house reservoir management and streamflow forecasts using a computer model known as the Seattle Forecast Model, or SEAFM. This model is regularly updated with hourly meteorological and hydrological data, and simulates the current state of the watershed (including snowpack, soil moisture, aquifer storage, and streamflows) and water supply system. The model is used to analyze and assess various future reservoir operating scenarios, both in real time and in near- and long-term operational planning, based on probabilistic analysis of over 70 years of historic weather; and
- Seattle's Conjunctive Use Evaluation (CUE) model, which is a weekly time step simulation model used for calculating and evaluating the firm yield and reliability of Seattle's water supply system and potential future water supply projects. While not a forecast tool, per se, the model provides valuable insight into the hydrologic record.

### **Communication**

SPU's Water Resources Management staff work closely with members of other city, local, state, federal and tribal resource agencies, including Seattle City Light, City of Renton, King County, Washington State Department of Ecology, Washington State Department of Fish and Wildlife, U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, National Marine Fisheries Services, Muckleshoot Indian Tribe and Tulalip Tribes.

The interagency Cedar River Instream Flow Commission established by the Cedar River Watershed HCP, convenes in regularly scheduled meetings once per month throughout the year to oversee Seattle's instream flow management on the Cedar River. Additional meetings, in person or by conference call, are scheduled on an as needed basis, especially during periods of water shortages. The interagency Tolt Fisheries Advisory Committee, established by the South Fork Tolt River Settlement Agreement convenes on an as needed basis throughout the year and is the primary forum for interagency technical communications related to that river during water shortages.

In addition to the communications noted above, throughout this plan are references to communication to customers, stakeholders and the media. What is in this plan regarding communications is guidance. It may be appropriate to do more or less communication depending on the particular circumstances of the water shortage.

### **Operational Adjustments**

Specific operational actions that will be made to reduce all non-essential water use are provided in Section 3 for each WSCP stage. Below is a discussion of how Seattle's water supply reservoirs are managed for people and fish during droughts.

### Management of Water Supply for People and Fish

Operational flexibility is key, with operating plans changing as conditions and forecasts change. SPU has developed “dynamic rule curves” to operate its mountain reservoirs in the winter season. These rules set target reservoir levels that vary with watershed snowpack and soil moisture conditions. At times when there is little snowpack and low soil moisture, the reservoir target will be set higher than normal flood control levels, and vice versa. Dynamic reservoir rule curves are used to adjust operations to actual watershed conditions and to help manage risk and uncertainty. Also, periodic salmon and steelhead redd surveys are undertaken during seasonal fish spawning events that enable informed management decisions to be made that seek to ensure adequate flow levels are provided during critical fish incubation and emergence periods.

### Curtailment Actions

Customers will be asked to take actions to curtail their use of water during a shortage. Those actions will depend on the stage of the WSCP being implemented at the time. Examples of potential water saving actions are noted in Section 3.

### Criteria for Curtailment During a Water Shortage

There are several criteria for deciding which curtailment measures are appropriate to reduce demand during a water shortage:

- Timing: Can the measures or actions produce results in the necessary timeframe?
- Magnitude of savings: Will the measures or actions result in enough savings to make a meaningful difference; i.e., reduce demand to the level the impaired water system can handle?
- Season: Are the actions or measures relevant to the time of year; i.e., banning lawn watering during the summer irrigation season vs. during non-irrigation season?
- Costs: How severe are the cost implications of the measure to the customer, including local business and industry, relative to the need for action? Note: While there could be costs to certain customers, which would be considered, particular actions still may be necessary for public health and safety reasons.

### Exit Strategy for WSCP Stages

As soon as actual and forecasted supply conditions substantially improve, SPU will either inform the public of the return to normal use of water, or inform them that the utility is moving from one stage to a lesser stage of this plan. This latter process would occur until there was a return to normal operations. Stages could be skipped in this process as conditions and forecasts warrant.

### Alternative Water Supplies

Depending on the nature and timing of a water shortage, alternative or emergency water supplies may be useful to supplement existing supplies. SPU has several options available:

- Chester Morse Lake "Dead Storage" – Seattle’s primary storage reservoir has a natural, gravity fed outlet. When inflows to the reservoir are low, its water surface elevation can fall below the natural outlet, but still contain a substantial amount of high-quality water in what is called “dead storage.” In 1987, Seattle installed the first of two emergency pump stations to pump the water over the natural outlet and into the river, thereby augmenting both instream flows and water availability for customer use. The second Morse Lake Pumping Plant was installed in 1992. These pumping plants allow use of dead storage during drought emergencies.
- Interties - Since water supply problems will not affect all water suppliers in the region to the same extent, it is sometimes feasible for SPU and its wholesale customers to obtain water from other providers through interties.
- Reclaimed water - Reclaimed water is highly-treated effluent that may be used instead of potable water for irrigation, street washing, construction purposes, etc., in order to reduce demand for potable water and lessen the impact of shortages on the community. Currently there are some significant constraints on the use of reclaimed water during a shortage, e.g., lack of availability, cost and safety of trucking or piping water over long distances. It is important to note, however, that if reclaimed water becomes more widely available in the region and becomes less expensive it may become prudent for SPU to draw on it as a limited back-up supply during water shortages, for non-potable uses only. If reclaimed water is used it would be in adherence with applicable state regulations governing reclaimed water use.

A key assumption of this plan is that abundance, shortage and risk must be shared among all beneficiaries of the water resource. For example, critical minimum instream flow levels at locations specified in the Tolt and Cedar agreements referenced above are resorted to only after human water consumption is curtailed. All of the tools, information sources and communications outlined above, are needed for coordinating and making decisions related to real-time operations.

## **WATER SHORTAGE CONTINGENCY PLAN PRINCIPLES**

SPU has learned a great deal over the years about how best to operate the utility during drought events, while minimizing impacts to customers and instream resources. This knowledge is reflected in this Water Shortage Contingency Plan, and articulated in the following principles:

- Given clear, timely and specific information on supply conditions and the necessary actions to forestall worsening conditions, customers prefer the opportunity to meet targeted demand reduction levels through **voluntary** compliance measures. The decision to move to mandatory restrictions is more acceptable if the voluntary approach has been tried first but has not resulted in enough demand reduction to ensure public health, safety and adequate streamflows through the projected duration of the shortage.

- Each drought or other shortage situation has enough unique characteristics that a plan cannot specifically define all the scenarios and specific supply and demand management actions. The usefulness of a Water Shortage Contingency Plan lies in planning the range of supply and demand management actions in advance of the situation, and in defining the communication mechanisms by which decisions will be made during the event.
- Given the highly-effective long-term regional conservation program operated by SPU, it is important to distinguish between the short-term **curtailment** measures necessitated by a water supply problem, and the **conservation** measures SPU regularly promotes to its customers. Conservation focuses on long-term efficiencies which do not adversely affect customers' accustomed use of water, whereas curtailment measures involve short-term water use reductions that can create hardships.
- It is essential to closely monitor water quality during droughts and particularly during a warm weather drought. This applies to water quality in rivers as well as to the drinking water provided to customers. Water quality issues must be considered for drinking water and instream uses when supply management decisions are made. The Seattle water distribution system is designed to carry a large capacity of water during summer peak months. If demand is significantly lowered, water will not move through the system at the "design" rate. The slower moving water, coupled with higher summer temperatures will increase the likelihood that drinking water quality problems may arise.

## SECTION 3

### PHASED CURTAILMENT PLAN

#### OVERVIEW OF PLAN STAGES

This plan provides four stages of response based on increasing severity, as progressively more serious conditions warrant. This type of response would be appropriate for a drought or other long-range disruption. It is the role of the Mayor of Seattle to officially activate the WSCP, when necessary. The four response stages include a variety of communications, internal operations, and supply and demand management strategies as appropriate, and are characterized as follows:

- **Advisory Stage** - The public is informed as early as meaningful data are available that a water shortage may occur.
- **Voluntary Stage** - If supply conditions worsen, the plan moves to the Voluntary Stage which relies on voluntary cooperation and support of customers to meet target consumption goals. During this stage, specific voluntary actions are suggested for both residential and commercial customers.
- **Mandatory Stage** - If the Voluntary Stage does not result in the reduction needed, or supply conditions worsen, the Mandatory Stage would be implemented. This stage prohibits or limits certain actions, and may be accompanied by an enforcement plan which could include fines for repeated violation.
- **Emergency Curtailment** - This stage addresses the most severe need for demand reduction and includes a combination of mandatory measures and rate surcharges. This would be used as the last stage of a progressive situation, such as a drought of increasing severity, or to address an immediate crisis, such as a facility failure.

#### PREPARATION FOR IMPLEMENTING WSCP STAGES

Recommendations about implementing the WSCP are made to the SPU Director by the SPU Water Shortage Response Team formed at the direction of the Director. Suggested team membership is provided in Attachment B. The actual composition of the team may change at any time as requested by the Director. This team, involving key departmental staff, would meet as often as appropriate to consider many or all of the following factors in making its recommendations about entering into any stage of this WSCP and modifying its recommendations as conditions change:

- total supply availability, including groundwater, interties, and modified instream flow releases
- the rate of decline in total reservoir storage compared with typical rates
- short- and long-term weather and hydrologic forecasts



- computer modeling of streamflow and reservoir storage, for different weather and demand assumptions (see Attachment C for possible demand management scenarios)
- the trends and forecasts of the system's daily water demands
- recommendations from the Water Shortage Advisory Group (if it has already been formed, if not yet formed, move forward in creating this group, see Attachment B for suggested role of this group and membership)
- recommendations from the Cedar River Instream Flow Commission and the Tolt Fisheries Advisory Committee
- the estimated margin of safety provided by the demand reduction, compared with the level of risk assumed if no action is taken
- potential water quality issues
- increased operating costs of potential actions and the value of lost water sales revenue, compared with the increased margin of reliability (see Attachment D for estimated costs and revenue losses for different stages of the WSCP)
- consultation with elected officials, wholesale customer representatives, state resource agencies, the Army Corps of Engineers and Tribes
- the length of time between stage changes (abrupt starts and stops are to be avoided, at least two weeks between stages is best to allow time to prepare)
- current events
- customer response, and
- water use consumption goals to be achieved, which may be revised as needed.

An SPU staff member is to be identified by the SPU Director to lead the water shortage response effort before it is activated.

The SPU Director will communicate the nature and scope of WSCP stage measures and strategies to the Mayor and Seattle City Council prior to implementing the WSCP and receive their input. The Director will communicate regularly throughout the shortage with the Mayor and City Council.

#### **Preparation Between Plan Stages**

When SPU is considering moving from one stage of the plan to another the department evaluates the need for doing so using much of the same information as noted above. Prior to moving to different stages of the plan, SPU will plan to consult with key stakeholders. There are also a number of preparatory measures that need to occur prior to moving from one stage to another, including, but not limited to: modifying any communication materials including customer water saving measures for the given stage, and "Questions and Answers" for customer groups, the determination of any staffing reassignments needed, and estimated costs and plans for covering those costs.

## **ADVISORY STAGE**

### **Objectives**

- Prepare the Department, City, relevant agencies and water users for potential water shortage thereby allowing all parties adequate planning and coordination time.
- Undertake supply management actions that forestall or minimize the need for more stringent demand or supply management actions.

### **Triggers**

As presented earlier, there are a variety of weather and other conditions that may cause concern about water availability and a potential water shortage. SPU will enter the “Advisory Stage” if supply conditions and supply forecasts raise significant concerns about the utility’s ability to meet supply needs later in the year.

### **Public Message**

"Potential exists for lower than normal supply; conditions **may** return to normal, or later on, we may need to reduce consumption. Continue to use water wisely to help ensure sufficient supply for people and fish. We'll keep you informed."

### **Communication Actions**

- Step-up and/or alter message of ongoing media education effort about the water system, particularly relationship of weather patterns to supply and demand; provide up-to-date data and implications for water use, if known.
- Initiate report to wholesale customers and request that they trigger their WSCPs.
- Provide periodic updated information on supply and demand data to SPU’s wholesale customers via SPU’s web page, or other means.
- Meet with landscape industry representatives to inform them of current and projected conditions; develop partnership programs and informational materials on the shortage, consumption goals, etc. for distribution by industry and utilities. Use landscape industry newsletter to communicate with industry members. As appropriate, communicate essential information via email by using Resource Conservation’s professional landscape industry database.
- Communicate with other special interests, e.g., large water users including parks, and major water using industries and provide periodic updated information to a variety of key customers (see Attachment E for a list of key contacts and Attachment F for potential Advisory Stage tips for saving water).
- Step-up communication and encourage cooperation of City departments and other public agencies, including: state and federal resource agencies, tribes, and other

regional water suppliers, including the Cities of Everett and Tacoma, about water supply conditions and projections.

- Prepare and distribute public information materials explaining the Water Shortage Contingency Plan stages and communicate water use efficiency tips to customers (see Attachment F).

#### **Operating Actions**

- Increase data collection actions (i.e., streamflows, snowpack conditions, etc.) and monitoring weather forecasts.
- Increase SPU's computer modeling runs of projected supply, storage, demand and revenue scenarios.
- Identify and implement supply side management techniques to optimize existing sources.
- Assess current water main flushing and reservoir cleaning activities to determine whether they should be accelerated to be completed prior to the peak season or reduced to conserve supply; communicate strategy to wholesale customers.
- Assess water quality in reservoirs and distribution system to identify areas that may experience severe degradation with reduced consumption.
- Initiate planning and preparation for Voluntary Stage actions, including an assessment of potential staffing impacts, training needs, and communications strategies.

## **VOLUNTARY STAGE**

### **Objectives**

- Take necessary supply management actions to further stretch available supply.
- Maintain or reduce demand to meet target consumption levels by customer voluntary actions.
- Forestall or minimize need later for more stringent demand or supply management actions.
- Minimize the disruption to customers' lives and businesses while meeting target consumption goals.
- Maintain the highest drinking water quality standards throughout the shortage.

### **Triggers**

The "Voluntary Stage" will be implemented when one or both of the following factors applies: 1) supply conditions have not improved, or have worsened, 2) demand levels need to be reduced given supply conditions.

### **Public Message**

"Demand needs to be reduced by \_\_\_\_%. Customers are responsible for determining how they will meet that goal. We are relying on support and cooperation of all water users to stretch the available water supply. If everyone cooperates, we may avoid imposing more stringent restrictions. In addition to meeting essential water needs of customers, meeting the needs of fish habitat and other environmental concerns is a priority."

### **Communication Actions**

- Communicate regularly with wholesale customers, groups that may be especially impacted by the water shortage, tribes, and resource agencies.
- Continue to communicate with other City departments and other public agencies to inform them of conditions, and encourage their cooperation.
- Identify and communicate actions taken by City departments to meet the voluntary curtailment goal.
- Consult with the Water Shortage Advisory Group, throughout the shortage, to help develop public information messages and materials and to obtain feedback on utility shortage actions.
- Develop and initiate a strategic public information, media and advertising campaign appropriate to the severity of the problem and the goal for demand reductions. This

could include publishing consumption information in daily newspapers to communicate the goal and ways to reduce consumption.

- Establish routine timing for press releases (e.g., every Monday morning) that provide current status and outlook; present information in standardized format that becomes familiar to media and public.
- Provide recommendations for customer actions to reduce consumption. See Attachment G for a list of recommended actions for this stage. Encourage customers to visit the *savingwater.org* website for more details on reducing water use.
- Include drinking water quality information in public information so that if flushing is necessary, the public understands that it is essential for drinking water quality maintenance.
- Publicize the water supply conditions web page, which is updated regularly. Ensure the information provided covers the needs of all key interests: the public, news media and key customers.
- Continue and intensify coordination and communication with state and federal resource agencies and tribes about supply conditions, demand management actions and streamflow levels.
- Establish and promote "hotlines" or websites for customers to obtain additional water conservation information.
- Contact largest customers to request percentage reduction.
- Establish regular communication mechanism to keep Department employees up to date on goals, conditions, and actions, especially utility account representatives that are tracking costs associated with the water shortage.
- Respond to customer correspondence regarding the shortage as quickly as possible and acknowledge receipt of correspondence if information is not readily available.

#### **Operating Actions**

- Continue actions listed in the Advisory Stage.
- Increase drinking water quality monitoring.
- Communicate flushing restrictions based on contract type to wholesale customers; eliminate demand metering charges, if demand metering is in effect.
- Assess revenue implications and potential remedies, including reprioritizing current revenue, reprioritizing expenses, and potential withdrawals from the revenue stabilization fund.

### **Supply and Demand Management Actions**

Based on the consumption goal, some or all of the following actions will be taken. **Those actions that are asterisked (\*)** will be considered initially for implementation if demand reductions more than 10 percent are necessary, or later if voluntary measures are not delivering targeted savings.

#### **Supply Actions**

- Eliminate all operating system water uses determined to be non-essential to maintain drinking water quality such as pipeline flushing, reservoir overflows. Complete cleaning of any in-town reservoirs only as needed.
- Request that wholesale customers who have alternative sources use them.\*
- Request the Corps of Engineers to reduce flow requirements and modify use of the Chittenden (Ballard) Locks.\*
- Investigate using any existing interties to increase supply availability.\*
- Begin to ready the pumping plants on Chester Morse Lake.\*
- In coordination with state and federal resource agencies and tribes, review stream flow levels.

#### **Demand Actions**

- Restrict hydrant permits to essential purposes.\*
- Request that Fire Department limit training exercises that use water.
- Request that City and County agencies eliminate washing of fleet vehicles unless water recycling car washes are used.
- Attachment G provides many possible actions customers can take to reduce water use. The actual actions requested at the time will depend on the specific demand reduction goal and the possible savings that can be achieved at that time.
- Evaluate ability to accelerate or enhance or expand long-term conservation programs; implement as appropriate.

## **MANDATORY STAGE**

### **Objectives**

- Achieve targeted consumption reduction goals by restricting defined water uses.
- Ensure that adequate water supply will be available for the duration of the situation to protect public health and safety and to balance the need for stream flows for instream resources, including fish habitat.
- Minimize the disruption to customers' lives and businesses while meeting target consumption goals.
- Maintain the highest drinking water quality standards throughout the shortage.
- Promote equity among customers by establishing clear restrictions that affect all customers.

### **Triggers**

The "Mandatory Stage" will be implemented if supply conditions have not improved, or the level of demand needs to be further reduced.

### **Public Message**

"It is necessary to impose mandatory restrictions to reduce demand because the voluntary approach has not resulted in the necessary savings [*or* conditions have continued to get worse and even more savings are needed]. We are continuing to rely on the support and cooperation of the public to comply with these restrictions, but need the certainty and predictability of restricting certain water uses in order to ensure that throughout the duration of this shortage an adequate supply of water is maintained for public health and safety."

### **Communication Actions**

- Inform the public about the nature and scope of the mandatory restrictions through a press conference, potentially paid advertising and other means. The enforcement mechanisms, rate surcharges (if the City determines that a surcharge should be implemented at this stage), target consumption goals, projections for how long restrictions will be in place and the reasons for imposing restrictions will also be identified, as will the possible consequences if goals are not met.
- Identify clearly any exemptions from restrictions.
- In communicating mandatory restrictions to the public, distinguish clearly between lawn/turf watering and watering gardens since lawns and turf can go dormant in the summer. The type and amount of watering allowed will be clearly defined.

- Urge customers who irrigate with private wells, reclaimed or recycled water to install signs to let the public know the type of water being used.
- Continue and enhance communication actions from the Advisory and Voluntary stages.
- Prepare plans to move into the fourth stage - Emergency Curtailment - and begin preparatory measures, as appropriate.

#### **Operating Actions**

- Continue appropriate actions from previous stages.
- Increase drinking water quality monitoring as necessary to ensure the water supply and demand management strategies will not result in unacceptable drinking water quality.
- Make reclaimed water available to tanker trucks for street cleaning, construction projects, landscape irrigation, dust control, etc., if practical.

#### **Supply and Demand Management Actions**

##### **Supply Actions**

- Commence emergency pumping of Chester Morse Lake when water levels are several feet above the rim of the natural lake and gravity flow is no longer sufficient, if needed.
- Continue intensive supply side management measures, including possible changes in instream flow releases in consultation and cooperation with the Corps of Engineers, Tribes, and state and federal resource agencies.
- If not already implemented, activate interties and any other alternative sources of supply, as feasible.

##### **Demand Actions**

- Finalize and implement procedures for exemptions from restrictions.
- Consider implementing rate surcharges to accelerate customer compliance with the restrictions, as authorized by the Director. These could potentially be implemented as outlined under the Emergency Stage of this plan.
- Adopt Council legislation on mandatory restrictions and on rate surcharges, if surcharges are to be implemented.
- Intensify communication of actions that customers should be taking that are identified in Attachment G, and modify if needed.



- If supply conditions continue to deteriorate and irrigation is still occurring, before moving to the Emergency Curtailment Stage, lawn watering will be restricted. Newly installed lawns may be watered according to certain guidelines, if procedures described in the section below are followed.
- Possible water restrictions are noted below. The nature of the restrictions used will depend on the severity and timing of the situation:
  - Prohibit all watering during the warmest hours of the day, for example between 10:00 a.m. and 7:00 p.m.
  - Limit all watering to a specific number of days per week or per month. This choice will depend on target consumption goals, the time of year and the extent to which watering is occurring, and how much demands have already decreased. For example, if demand has already been reduced by 15% through other measures, during July and August limiting turf watering to **two** days a week on a region-wide basis could further reduce average daily demand by as much as 15 million gallons. Limiting lawn or turf watering to **one** day a week could yield an additional average daily reduction of up to 15 to 20 million gallons.
  - Ban lawn watering (see exemptions section below), with other watering prohibited during the warmest hours of the day, for example, between 10:00 a.m. and 7:00 p.m. Note: This should be considered only when the less stringent measures noted above have been tried and found inadequate; it would be best to consult with utility and landscape partners before taking this action.
- Other possible restrictions are noted below. Again, the nature of the restrictions used will depend on the severity and timing of the situation:
  - Prohibit use of any ornamental fountain using drinking water for operation or make-up water.
  - Prohibit car washing except at commercial car wash facilities that recycle water.
  - Rescind hydrant permits.
  - Prohibit washing of sidewalks, streets, decks or driveways except as necessary for public health and safety.
  - Limit pressure-washing of buildings to situations that require it as part of scheduled building rehabilitation project (e.g., painting).
  - Prohibit water waste including untended hoses without shut-off nozzles, obvious leaks and water running to waste such as gutter flooding and sprinklers/irrigation whose spray pattern unnecessarily and significantly hits paved areas.

Possible Exemptions from Water Use Restrictions

Categories of possible exemptions include: new lawns, new landscapes, sport fields and golf courses, ball fields and play fields, use of water for dust control at construction areas and other areas to comply with air quality requirements. The exemptions noted in Attachment H are possibilities for SPU to consider in creating actual exemptions at the time of the event.

## **EMERGENCY CURTAILMENT STAGE**

At this stage, SPU recognizes that a critical water situation exists and that, without additional significant curtailment actions, a shortage of water for public health and safety is imminent. This type of situation has never occurred in the Seattle water system's history.

This stage is characterized by two basic approaches. First, increasingly stringent water use restrictions are established. Secondly, significant rate surcharges are used to increase customer compliance. A surcharge is a key component to the success of this stage.

### **Objectives**

Strive to meet the water use goals established for this stage, recognizing that customers' lives and businesses may be significantly impacted in order to achieve necessary water savings.

### **Triggers**

The water savings needed to ensure sufficient water is available for public health and safety throughout the water shortage are not being achieved, or conditions have worsened, therefore, more stringent measures are needed.

### **Public Message**

"We are in an emergency water supply situation and need the immediate assistance of the public to achieve necessary water savings. We are imposing additional water restrictions and a rate surcharge to achieve the savings because the mandatory approach has not resulted in sufficient savings [*or conditions have continued to get worse*], and we need to ensure water will be available for public health and safety throughout this shortage."

### **Communication Actions**

- Continue and intensify all previous, applicable actions.
- Define the problem to the public as an emergency and institute formal procedures to declare a city emergency.
- Inform customers of the rate surcharge and how it will affect them. Provide information on an appeal process.
- Coordinate with police and fire departments requesting their assistance in enforcing prohibition of water waste, if authorized by the Director.
- Inform customers that taste and odor water quality problems may occur with system-wide reduced water consumption.
- Inform customers about possible pressure reductions and problems that may occur, if any, due to the emergency water supply situation.

- Define and communicate exemptions for medical facilities and other public health situations.

### **Operating Actions**

- Continue actions listed in prior stages.
- Curtail fire line testing unless it can be shown to be essential to protect the immediate public health and safety.
- Further enhance drinking water quality monitoring actions.

### **Supply and Demand Management Actions**

#### **Supply Actions**

- Continue actions listed in prior stages.
- Work with Army Corps of Engineers to substantially limit use of the Hiram Chittenden Locks.

#### **Demand Actions**

- Implement rate surcharges to accelerate customer compliance with the restrictions, as authorized by the Director. These could potentially be implemented as follows:

Commercial Customers - Commercial, multifamily and industrial users would be asked to reduce water use by a set percentage of their consumption during the same period in the previous year. Emergency rate surcharges would be established to provide an additional incentive to reduce water use. It is SPU's intention to establish a two-tiered structure. This "variable block approach" would allow for two different surcharge rates: one on the first block and a higher rate on the second block. These "blocks" would be based on the individual customer's consumption during the same period in the previous year. For example, if we were to target desired consumption to be 85% of the previous year's consumption in that period, any consumption between 0% and 85% would be billed at one rate and any consumption over 85% would be billed at the second, much higher rate. In this way, the targeted reduction amount and resulting surcharges would be customized around each customer's water use patterns, while still resulting in a steep surcharge for consumption in excess of the target amount for each block.

A billing system modification would be needed to allow SPU to accomplish this. If this has not been done by the time it may be needed, a simple across-the-board rate surcharge would be applied.

Residential Customers - A three-tiered, increasingly steep rate structure would be implemented for residential customers (includes single-family dwellings and

duplexes). While there are differences in household size, there is more similarity in residential domestic water use than there is in commercial water use.

Exemption from Rate Surcharge for Special Medical Needs - The utility will exempt customers with special medical needs such as home dialysis from a rate surcharge, provided individual customers notify the utility of such a need.

- Prohibit all lawn and sport field watering, with no exemptions.
- Require that all fire fighting agencies discontinue the use of water in training exercises until emergency is over.
- Rescind all hydrant permits.
- Require local parks departments to close down pools.

## **SECTION 4**

### **NON-DROUGHT WATER EMERGENCY CURTAILMENT PLAN**

#### **INTRODUCTION**

Although many of the demand reduction measures employed would be similar to those used during a progressive, weather-related shortage, non-drought water emergencies are unique because of a lack of preparation time and the urgency of immediate, potentially large-scale demand reductions. Each emergency scenario is different, but many could require major curtailment actions by customers. Also, unlike droughts, some emergencies may be very localized, requiring demand reduction for only a limited geographic area within the SPU service area.

In order to provide a frame of reference for future emergency situations, a short discussion of potential major water emergencies is provided here. This WSCP complements SPU's Emergency Response Plan. That plan is a supplement to the City of Seattle Disaster Readiness and Response Plan (City Disaster Plan) and would be implemented in immediate emergencies such as in the examples provided below. SPU's emergency plan defines decision-making authority in emergencies and creates specific emergency action plans for a number of systems, security, and management procedures, including information. Furthermore, if needed, SPU has emergency water provisioning equipment and plans for implementation as described in the "Emergency Drinking Water Distribution Plan." This plan would be implemented to provide water if customers in an area, or areas, were unable to receive water through normal means.

#### **TYPES OF POTENTIAL NON-DROUGHT WATER EMERGENCIES**

##### **Major Transmission Pipeline Break**

One potential water supply emergency is a major transmission line break from either the Tolt or the Cedar River supplies. The potential impact on customers would depend on the location of the break, the extent of damage, the amount of time needed for repair, the season it occurred, and how easily SPU could re-route water supply to customers in the affected area. Due to the redundancy in SPU's system, the two major pipeline failures that occurred since 1987 had fairly minor impacts on customers.

##### **Temporary Treatment Plant Shut Down**

Another type of supply emergency is a temporary shut down of either the Cedar or the Tolt water treatment plants. As with a transmission pipeline break, the potential impact on customers would depend on the time needed to return the plant to service and the time of year. An example of this was in 2003 when the Tolt Treatment Facility was shut down for about a week when a raw water inlet valve malfunctioned causing flooding of the plant. Because this event occurred during the winter when demands were low, all retail and most wholesale customers were provided water from the Cedar system without disruption; a few wholesale customers were supplied from water stored at the plant's clearwell.

### **Major River Flooding Leading to High Turbidity**

If substantial flooding occurred on the Cedar River or South Fork Tolt River it could lead to high turbidity causing SPU to temporarily stop using that supply. For the Cedar, if major flooding occurred at the same time that Lake Youngs was at or below normal minimum operating levels, high turbidity could lead to a temporary shut down of that supply. In 1990 such an event occurred on the Cedar, when flooding exceeded the 100-year event. It should be noted that with the addition of filtration on the Tolt supply and the change in intake location on the Cedar supply, SPU's supply sources are much less vulnerable to impacts of turbidity than in the past.

### **SUPPLY AND DEMAND MANAGEMENT DURING NON-DROUGHT WATER EMERGENCIES**

No single strategy can be created which will meet the needs of the department for all non-drought water emergency scenarios. Strategies for dealing with emergencies have been developed based on lessons learned from previous water utility events, and other utility experiences. The criteria listed in Section 1 of this WSCP create a framework for decision-making. The types of non-drought emergencies listed in this section initially require quick and immediate response. Once an assessment is made as to how long it will take to restore the system, the immediate response strategy may change if it appears that the repair process will be lengthy.

The strategy for most emergencies can be narrowed to measures having the most immediate impact on achieving water supply and consumption targets. All needed and available back up supplies would be activated during an emergency: interties, well-fields, off-loading wholesale customers who have other sources, etc.

## Attachment A

### **Examples of Past Regional Drought Experiences**

The droughts that the Seattle regional water system has experienced in recent history were very different types of droughts. While SPU has changed how it operates the system based on the lessons learned from the past, it is useful to be aware of these past drought events and the actions taken to successfully manage both supply and demand.

#### **Summer/Fall Drought**

In 1987, storage reservoirs were at normal levels on June 1, but the summer weather was unusually warm and dry. Higher than normal outdoor water use accelerated the drawdown of the storage reservoirs. To reduce demand, in early August lawn watering was restricted to no more than once every three days and customers were urged to voluntarily curtail other water uses. These actions reduced demand by approximately 10 percent. In early fall, an emergency pumping station was installed at the Chester Morse Lake reservoir to pump "dead storage" in case the reservoir level fell below the lake's natural outlet.

Throughout the fall, precipitation continued below normal; the water supply system was managed and adjusted to obtain the maximum supply available (e.g., relying on Lake Youngs more than normal). In November 1987 and January 1988, the Chester Morse reservoir was low enough to require pumping and it was not until February 1988 that rainfall began refilling the storage reservoirs.

#### **Winter/Spring Drought**

In 1992, the system experienced a very different type of drought. Because the winter was unusually warm, snowpack and flows into the storage reservoirs were at record low levels. In late February, it was evident that there was insufficient snowpack to fill the storage reservoirs and that the likelihood of recovery by June 1 due to rainfall was low. A number of measures were taken to maximize available supply (e.g., reducing system flushing, adjusting stream flow levels, etc.) and to reduce demand. In May, a number of mandatory curtailment actions were implemented in the Seattle service area, including a ban on lawn watering. This resulted in an average consumption reduction of 25 to 30 percent below normal throughout the summer. Tribes, state resource agencies and the Army Corps of Engineers played a significant role in cooperating to maximize available water supply. In addition, other measures were taken to increase available supply including initiating an intertie with Renton and accelerating the construction of a second pump plant for use of dead storage at Chester Morse Lake. The mandatory restrictions were rescinded in September as supply levels returned to normal with the onset of fall rains.

In 2005, SPU watersheds experienced the lowest snowpack in 60 years, one of the driest winters on record and warmer than normal winter temperatures. Water managers responded by activating the Advisory Stage of the WSCP, reducing system water use and maximizing the amount of water held in storage using the dynamic rule curve. As a result of this active management and nearly average rainfall in the spring, SPU was able to return to normal operations by summer that year.



## Attachment B

### Water Shortage Response Team and Water Shortage Advisory Group Memberships and Roles

#### **Water Shortage Response Team**

**Purpose:** SPU's internal team whose role is to evaluate conditions, advise the Director on supply and demand actions, and make assignments to SPU staff as needed to respond to the shortage.

**Membership:** The Team is appointed by the Director and may include the following members to fill the roles indicated; however, the actual composition may change at any time as requested by the Director:

- SPU Director – Overall direction on the response.
- Branch Directors – Input to Director for response.
- Lead for Shortage Response – Issue coordination, information gathering and dissemination, key support staff assignments, role clarification, and communication with broad array of interested parties.
- Drinking Water Division Director – Overall guidance on supply management, drinking water quality and operations, status of non-revenue water, issues related to potential alternative supplies, and opportunities for use of non-potable water.
- Cedar and Tolt Watershed Services Division Director – Provide guidance regarding watershed activities that may impact water supply.
- Water Resources Business Area Manager – Provide water supply condition reports, forecasts, demand pattern reports, operational needs, and modeling identification and oversight.
- Water Resources Management Staff Representative – Provide guidance regarding instream flows/fisheries, river analyses, river biological assessments, and coordinate with Cedar River Instream Flow Commission and Tolt Fisheries Advisory Committee.
- Resource Conservation Manager – Water use reduction measures management and messaging, cost estimates to achieve savings, and communication with landscapers, nurseries and large water users (commercial and residential).
- Communications Director and Staff Representative(s) – Messaging, customer relations, media relations, press releases, key contact for interagency Public Information Officers (PIOs), agency communication, and coordination with wholesale customers, cities of Everett and Tacoma and Central Puget Sound Water Suppliers' Forum.
- Finance Staff Representative – Cost estimates for supply alternatives, increased messaging needs and additional water use reduction measures, expected lost revenue estimates, budgets and charge number set-up for shortage-related activities, and process necessary to access revenue stabilization fund, if needed.

Note: If the Morse Lake Pumping Plants need to be readied for potential use, an additional staff member may participate in the Response Team to report on issues related to the plants.

### **Water Shortage Advisory Group**

**Purpose:** To advise the SPU Water Shortage Response Team in defining messages and providing feedback on utility water shortage response actions and programs.

**Membership:** Group membership will be based on the type of water shortage and how widespread it is. The Director, or his/her designee, will send out invitations to potential members and agencies. The following is a list of potential members to be considered when forming the Group membership:

- Wholesale customer representative(s)
- State and federal resource agencies, such as the Army Corps of Engineers, Washington State Department of Ecology, etc.
- Landscape and/or nursery representative(s)
- Other potentially impacted industries and businesses (e.g., restaurants, hotels, car washes, etc.)
- Environmental representative
- Tribal representatives
- Water System Advisor committee representative
- Other City departments, such as Parks or Seattle City Light
- Other regional water suppliers, such as Tacoma Water or Everett Public Utilities
- SPU staff as appropriate.

Attachment C  
Possible Demand Management Scenarios

*Note: Information developed during spring 2005.*

Scenarios	% Savings	Savings (in mgd)				Residential Indoor	Residential Outdoor	General Commercial	Commercial Outdoor
		Apr-May	Jun-July	Aug.	Sept-Oct				
Pre and Stage 1 Advisory	<1%	1	2	4	2	full clothes and dish washing machine loads, check and repair leaks	sweep driveways & sidewalks, water wisely, drought proof new plantings, top dress, aerate and grasscycle lawns, mulch all planting beds, use commercial car wash that recycles water	check and repair leaks, encourage employee suggestions, sweep driveways and sidewalks, voluntary City facility reductions	check systems and repair real time ET controllers, central controls for multi-control systems, rain shut-offs, soaker hose or drip alternatives, top dress, aerate, and grasscycle lawns, drought proof new plantings, mulch all planting beds
Stage 2 Voluntary Curtailment	5-10%	5	10	15	10	push above measures harder, 1 or more less minutes per shower, reduce toilet flushing, install efficient fixtures & appliances	push above measures harder, water only between 7 p.m and 10 a.m., allow lawn to go dormant, avoid draining hot tubs & pools, defer car washing, reduce landscape watering, water planting beds infrequently, new landscapes exempt	push above measures harder, mandatory City facility reductions, defer washing vehicles, inspect cooling towers, water at restaurants by request only, hotel linen change by request only, install efficient fixtures, cost-effectively invest in efficient technologies, use reclaimed water, if practical	push above measures harder, curtail fountain use, no make up water, suggest watering restrictions including time of day (new lawns exempt, sports fields partially exempt)

Scenarios (cont.)	% Savings	Savings (in mgd)				Residential Indoor	Residential Outdoor	General Commercial	Commercial Outdoor
		Apr- May	Jun- July	Aug.	Sept- Oct				
Stage 3 Mandatory Curtail- ment	10-20%	10	20	30	15	push above measures harder	push above measures harder, prohibit vehicle washing, prohibit sidewalk, driveway washing, watering restrictions including time and number of days, new landscapes still exempt, no pool or hot tub drain & filling, curtail power washing, no fountain make-up water	push above measures harder, prohibit vehicle washing, defer major uses if possible, use reclaimed water if practical	push above measures harder, prohibit sidewalk, driveway washing, ET limitations for auto irrigation use, prohibit fountain use, watering restrictions including time and number of days, sports fields may be partially exempt, new lawns may be partially exempt
Stage 4 Emergency Curtail- ment	>20%	20	30	40	20	push above measures harder	push above measures harder, lawn watering ban, new landscape watering restrictions/ban	push above measures harder, must use reclaimed water if practical	push above measures harder, lawn watering ban, no potable water for irrigation, new landscape watering restrictions/ban

## Attachment D

<b>Estimated Cumulative Costs and Revenue Losses for WSCP Stages (based on 2005 dollars)</b>				
<b>Revenue &amp; Cost Impacts</b>	<b>Stage 1 Advisory</b>	<b>Stage 2 Voluntary</b>	<b>Stage 3 Mandatory</b>	<b>Stage 4 Emergency</b>
<b>Revenue Loss</b>	<b>\$ 1,000,000</b>	<b>\$ 5,000,000</b>	<b>\$ 9,000,000</b>	<b>\$ 13,000,000</b>
<b>Cost</b>	<b><u>\$ 55,000</u></b>	<b><u>\$ 1,485,500</u></b>	<b><u>\$ 2,935,500</u></b>	<b><u>\$ 3,285,500</u></b>
Demand Management				
customer outreach		250,000	650,000	650,000
customer incentives			950,000	950,000
enforcement			100,000	300,000
Cedar Pumping				
preparation		500,000	500,000	500,000
mobilization	30,000	354,500	354,500	354,500
pumping costs		81,000	81,000	81,000
Seattle wells	25,000	300,000	300,000	450,000
<b>Total: Revenue loss &amp; costs</b>	<b><u>1,055,000</u></b>	<b><u>6,485,500</u></b>	<b><u>11,935,500</u></b>	<b><u>16,285,500</u></b>
<b>Financial Tools Used to Mitigate Impacts (descriptions below table)</b>				
Reprioritize Current Revenue	X	X	X	X
Reprioritize Expenses		X	X	X
Withdrawal from Revenue Stabilization Fund			X	X
Rate Surcharge			X*	X
<b>Notes:</b>				
1) Estimates were created in spring of 2005 for 2005 event. Actual future costs would vary depending on the season, and specific actions taken in a given event. In 2005 SPU entered into Advisory Stage only.				
2) Above are costs incurred for each stage. The costs for Stages 2 - 4 include the costs incurred in the previous stage(s). Estimated lost revenue follows the same approach.				
3) Stage 4 revenue loss estimates here do not include funds that will be brought in by surcharges. Estimates for those surcharges have not been developed.				
* The City may implement a rate surcharge in the Mandatory Stage.				

*Reprioritizing Current Revenue* – This consists of reducing revenue contributions to the capital program and lowering the year end operating cash target. These are the most flexible resources to offset revenue and expenditure problems.

*Reprioritize Expenses* – Reducing planned operations and maintenance expenditures reduces demand on revenues or frees up money to meet unexpected needs.

*Withdrawals from Revenue Stabilization Subfund* – The City of Seattle has established a Revenue Stabilization Subfund for the water fund. The target balance is \$9 million, which can serve as a source of revenue during moderate droughts. Withdrawals from the Subfund require Council approval.

*Rate Surcharge* – In emergency situations, rate surcharges send a strong signal to customers to reduce water use and also help to make-up revenues lost due to decreased demand.

## Attachment E

### CONTACT LIST FOR WATER SHORTAGE CONTINGENCY PLAN

A working list of contacts for easy reference in case of a drought or emergency should be developed and regularly updated by the Resource Conservation Section in consultation with others in the Department. In addition to the communication elements contained in the WSCP, the following will be contacted directly in the event of a drought or emergency to inform them and ask for their support and cooperation in reducing demand.

#### **Customers**

List of wholesale water customers

List of large irrigators, including those using alternate sources

List of large commercial and industrial customers

#### **City of Seattle Contacts**

Department Directors

Contacts for:

Seattle Department of Parks and Recreation

Seattle Transportation Department

Seattle Center

Fire Department

Department of Executive Administration

Fleets and Facilities

List of City owned, non-re-circulating and re-circulating fountains

#### **Other public agencies with high visibility water use**

State Department of Transportation

University of Washington

Army Corps of Engineers

King County Department of Natural Resources & Parks

Seattle Public Schools

#### **Landscape Interests**

King County Cooperative Extension

Washington State Nursery and Landscape Association

Irrigation Association

Washington Association of Landscape Professionals

American Society of Landscape Architects

Center for Urban Horticulture

Pacific Northwest Golf Course Superintendents' Association

Washington Irrigation Contractors Association

\*Note: Resource Conservation maintains a database of over 400 landscape-related businesses and other contacts.

#### **Business Groups**

Seattle/King County Chamber of Commerce

Building Owners and Managers Association

Attachment F  
**POSSIBLE ADVISORY STAGE WATER CONSERVATION TIPS  
FOR CUSTOMERS**

***Conserve Inside***

For most households, the vast majority of water is used indoors. Taking conservation actions and installing efficient fixtures help reduce your water use year-round. There are also ways to conserve water in outdoor uses and at work. Below are suggested actions:

- Fix leaking faucets and toilets.
- Wash only full loads in the dishwasher and clothes washer.
- Minimize faucet use when brushing your teeth, shaving and washing dishes.
- Don't pre-rinse dishes unless you need to. Most new dishwashers don't require pre-rinsing.
- Save luke warm water for watering plants, etc. while you wait for hot water in kitchens and showers.
- If you are buying a new toilet, look for a FlushStar model. Call us or visit us online if you have questions.
- If you are buying a new washing machine, WashWise rebates are available for qualified machines.

***Conserve Outside***

Make the most of the water you will use in the spring and summer:

- Aerate lawns in the spring to better absorb water.
- Mulch planting beds to decrease evaporation.
- Select the right plants for the right place – contact SPU or see our website for information.
- Tune-up and improve your irrigation system – rebates may be available.
- Wash your cars at locations that recycle their water.

Note: For more information on home water conservation tips for inside and out, visit [www.savingwater.org](http://www.savingwater.org) or call 684-7283 (684-SAVE)

***Conserve at Work***

Businesses and institutions can reduce water use and lower utility costs by adopting conservation practices and replacing inefficient equipment or operations.

- Check for leaks.
- Use a broom, instead of a hose, to routinely clean driveways and sidewalks
- Turn off water-using equipment when not in use, including dishwashers, garbage disposals, and food troughs.
- Upgrade equipment efficiency – rebates may be available.
- Increase employee awareness of water conservation.
- Call (206) 343-8505 for technical assistance for work-related water-wise tips.



## POSSIBLE VOLUNTARY STAGE CUSTOMER WATER SAVING ACTIONS

**The following voluntary actions are being requested of all customers:**

### **SET A GOAL: Such as use 10% less water**

Most customers can easily save 10% by choosing several items from the menu of water saving actions below. If you routinely do outdoor watering, select those actions first. Set a goal to reduce your water use by 10% from the amount you used during the same billing period last year. Most utility bills contain your water consumption for each billing period. Much of the 10% can probably be achieved through conservation actions that are wise to do all the time. If that is not sufficient, then the special curtailment actions listed here can be implemented during the duration of the supply problem.

### **REDUCE OUTDOOR WATER USE**

#### Conservation Actions:

- **Avoid watering** between 10 AM and 7 PM to reduce evaporation.
- **Stop obvious water waste** such as gutter flooding, sidewalk and street watering, and fix leaks.
- **Never leave a hose running**, always use a shut-off nozzle.
- **Use a broom** rather than a hose or pressure washer to clean sidewalks and driveways.

#### Curtailment Actions:

- **Reduce lawn watering** (twice a week or less if possible).
- **Let your lawn go dormant.** Customers who choose to not water their lawns should water deeply once each rainless month to keep grass roots alive. To avoid runoff when you water, if the water puddles, cycle your sprinkler on and off until water is absorbed.
- **Refrain from filling** empty pools and hot tubs.
- **Turn off water features** and fountains.
- **Wash vehicles only at car washes that recycle their water.**

### **REDUCE INDOOR WATER USE**

#### Conservation Actions:

- **Install a water efficient FlushStar toilet.** These toilets have proven to perform well and give long-term water savings. Replacing a frequently used old toilet with a new efficient toilet can save most households up to \$70 a year in utility bills (*based on data from 2005*). Check [www.savingwater.org](http://www.savingwater.org) for FlushStar toilet models.
- **Install a high-efficiency clothes washer.** New washers are typically one-third more water efficient than old washers. Rebates are available from Seattle Public Utilities by calling (206) 684-SAVE.
- **Wash only full loads in the clothes washer and dishwasher**, or choose an appropriate load-size setting for the number of items in the washer.
- **Turn off the tap** while brushing your teeth, hand-washing dishes or shaving.
- **Fix leaky faucets and toilets.** Put several drops of food coloring in your toilet tank. After 20 minutes, if you have color in the bowl, you have a slow leak that over time can amount to a lot of water.

- **Install an efficient showerhead.** New showerheads work well and use much less water than old high-flow models.
- **Install an efficient faucet aerator.** Replace your older bathroom faucet nozzle (aerator) with one that uses one gallon per minute or less.

Curtailment Actions:

- **Spend one minute less in the shower.** Try to limit showers to five minutes or less.
- **Flush your toilet less often.** Toilet flushing is the largest water use inside the home. As the saying goes, "If it's yellow, let it mellow."

## **REDUCE WATER USE AT WORK**

There are a wide variety of opportunities for businesses and agencies to reduce their water use and operating expenses.

Conservation Actions:

- **Check cooling towers.** Cooling towers - and the ways that they regulate water use – represent real opportunities for improving water efficiency.
- **Check for and fix leaks.** Toilet and urinal leaks are very common. Investigate obvious or suspected leaks.
- **Use a broom,** instead of a hose or pressure washer, to routinely clean driveways and sidewalks.
- **Turn off water-using equipment** when not in use, including open hoses, dishwashers, garbage disposals, and food troughs.
- **Check air conditioners, refrigerators, and ice machines.** If your company's air conditioners or refrigerators use water-cooled condensers, investigate air-cooled equipment for possible efficiencies. Rebates are available. Visit [www.savingwater.org](http://www.savingwater.org).
- **Install water-efficient toilets, urinals and faucets** in public and employee restrooms. Replacing old toilets, urinals, and faucet aerators with efficient ones can produce substantial savings. Rebates are available. Visit [www.savingwater.org](http://www.savingwater.org).
- **Reuse process water.** Water used in industrial and manufacturing processes should be reused as often as possible. Rebates are available. Visit [www.savingwater.org](http://www.savingwater.org).
- Hospitality businesses can offer guests the option of clean linens each day.
- **Increase employee awareness of water conservation** through management memos or newsletter messages. Install signs that encourage water conservation in restrooms or work areas where water is used. For additional work-related conservation tips, call (206) 343-8505.

Curtailment Actions:

- **Reduce outdoor watering** (twice a week or less if possible). Rebates are available for smart irrigation technologies. Visit [www.savingwater.org](http://www.savingwater.org).
- **Minimize vehicle washing,** defer or use a water recycling car wash.
- **Turn off decorative water fountains.**
- **Serve water only on request** at restaurants. Avoid thawing with running water.

For home water conservation tips, visit [www.savingwater.org](http://www.savingwater.org)  
or call (206) 684-7283 (684-SAVE)

## Attachment H

### **POSSIBLE EXEMPTIONS FROM WATER USE RESTRICTIONS**

#### **New Lawns and Landscapes**

If a lawn and/or landscape is installed prior to the date the watering restrictions were announced, and in the same calendar year, it may be watered for a limited duration on a daily basis for a specified number of days, e.g., 10 minutes per day for the first two weeks after its installation. After that period, some watering may still be allowed on a reduced basis. The watering may also be restricted to certain times of day. All details will be determined based on the time of year and severity of the shortage.

The utility will publicize the rules for exemptions to the lawn and landscape watering restrictions. The customer will need to contact the utility with name and address, stating that they meet the conditions and will be watering their lawn and/or landscape. This should be done in writing, either via email or other means. The utility reserves the right to spot check on site for compliance.

New lawns and landscapes may also be installed after the date of the restrictions. To receive a watering exemption the minimum requirements for soil preparation must be met and a signed affidavit provided to that effect. Minimum soil preparation consists of cultivating into the top six inches of existing soil at least two inches of organic soil amendment, such as composted yard waste. The same restrictions for watering as above would also apply.

For purposes of this exemption, “new lawn” refers to a lawn newly installed during the current year only. Overseeded or otherwise renovated lawns will not be exempt from the lawn watering restrictions.

**Note:** The utility will not guarantee continued watering. If the water supply situation worsens, any exemptions may be revoked. In the event that the shortage continues to worsen and the Emergency Curtailment Stage is activated, this exemption would be revoked.

#### **Sports Fields and Golf Courses (greens and tees only)**

Sports fields and golf courses (greens and tees only) can be watered according to an evapotranspiration (ET)-based schedule, provided at least the following:

- ☐ The irrigation system must be audited between 0 to 60 days prior to the effective date of the watering restrictions, by an Irrigation Association-certified Irrigation Auditor.
- ☐ The audit must find that the system's lowest quarter distribution uniformity is at least 70%.

- ☐ Watering is prohibited during the warmest time of day. Specific times will be announced by the utility.
- ☐ Water running to waste is to be avoided.

**Other Exemptions**

For purposes of dust control, water may be applied to construction areas or other areas needing to comply with air quality requirements. If reclaimed water is available, consider requiring or promoting that it be used for dust control, if practical.

Ballfields and playfields may be watered at the minimum rate necessary for dust control and safety purposes.